GAS JOURNAL

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COKE MARKETING

THE Annual Meeting of the London and Counties Coke Association marked the end of an epoch. From vesting date under the Gas Act the property, rights, liabilities, and obligations of the Association will vest in the Gas Council, of which at least three members of the Central Committee will be members. We do not know what the future of the Association will be, but we regard the present as the end of a beginning rather than the beginning of an end. There is no doubt that the work started 18 years ago and developed consistently and successfully must be carried on and improved if the industry and its consumers are not to suffer. Some structural change is inevitable, for instead of between 260 and 270 individual undertakings the membership—assuming the area remains the same—will consist of five Area Gas Boards. But, for many years to come, there will remain the same number of coke-producing works and very much the same number and variety of consumers, whose supply and demand must be balanced.

The report presented last week showed that the coke produced for sale by members of the Association in the year ended June 30 amounted to 3,611,345 tons, against 3,665,022 tons in the preceding year, the apparent reduction being explained largely by the fact that during the first half of 1947 the maximum use was being made of water gas plant. For the coming year the estimated production is over 4,000,000 tons. The supply position has changed from marked deficiency to equally marked surplus, and although the time is not yet ripe for the lifting of all controls there have been some relaxations, and the Association is asking for more, and particularly for an increased allowance of coke to domestic consumers.

The Association started active work in 1931 and something constructive has been done each year since, including the war years, towards the better marketing of coke. The three main objects in forming the Association were to promote the use of coke ; to improve the quality, and to regulate the price. One of the greatest contributions the Association has made has been the attention it has given to the improvement and development of appliances in which coke is used. Much has been done to satisfy the second objective ; more would have been done if the war had not upset the selection and preparation of coal for carbonization. For "regulation of price" there should be substituted a more comprehensive expression, such as perhaps "regulation of coke marketing," for the contribution the Association has made in this connexion has been more far-reaching than that of merely price regulation. It was with good reason that Colonel H. C. Smith, in seconding the adoption of the report, expressed the feeling that they would hand over to the new owners of the gas industry not a derelict Association but a live and efficient organization, ready to play its full part in the successful progress of the industry.

STEEL NATIONALIZATION

PROGRESS and expansion of the gas industry are linked with the production and availability of steel, and the industry will have followed with much more than passing interest the debate on the Bill in the House of Commons last week. On April 1 next the gas industry passes to nationalized control and will fit in to that extent with the pattern of the fuel industries of this country as a whole. But arguments applicable to the fuel industries do not, to our mind, bring any conviction in regard to the merits of the nationalization of steel, albeit steel is without any question a basic industry. The Government, we think, floundered badly, adducing arguments quite beside the point of efficient steel production and distribution, merely pushing nationalization for the sake of a political doctrine, divorced from the interests of the consumer. Even taking into account the foregone conclusion, the debate, as far as we could observe, aroused the passions of very few indeed of those who form the body electorate ; and apart from a few expected Parliamentary outbursts the debate was, in view of its obvious political and practical significance, singularly dull and grey. Prior to the debate the Federation of British Industries was busy. On Nov. 11 the Federation issued a statement giving the outstanding impression that the Bill provides no practical plan or programme of action. The F.B.I. put forward the argument that the steel industry is showing a fine record of achievement and efficiency, accompanied by sound labour relations, that there is no evidence that the drastic changes of ownership proposed under the measure would benefit producers, consumers, workers, or the nation. On the day following, the National Union of Manufacturers, representing 7,000 British manufacturers and 55 trade associations in all parts of the country, registered their opposition to the Bill on the grounds that it contributes nothing to industrial efficiency and, by causing uncertainty, will restrict progress. The Council of the Stock Exchange protested against the proposed use of market values as the basis for compensation under the Bill—"prices which" (we quote from the Council's memorandum) "have been artificially held down. . . . as a result of voluntary co-operation with the policy of the Government, which is now to take powers for compulsory purchase on its own terms." The Council asked for independent arbitration.

The debate opened in the House on Nov. 15, the Minister of Supply, Mr. George Strauss, unfolding the Government's case amid sundry, but minor, explosions of derision from the Opposition. Mr. Strauss contended roundly that, failing nationalization, the steel industry, whatever its record, could over a long period neither produce cheap steel in ample quantities nor be responsive enough to national requirements. Present arrangements, with the Iron and Steel Board, did not enable the Government to exercise a "sufficiently positive influence." The industry and individual producers could be told what not to do, but in most matters not what they

must do. While any proposals put up by the industry could be vetoed, neither the Board nor the Minister had effective power to ensure that other proposals would be initiated, let alone carried out, if the directors of the individual concerns did not like them. Only when ownership and control were combined could progress be made. It was clear, however, that the pattern of national ownership appropriate to coal, gas, and electricity would not suit the iron and steel industry. Hence their decision "to preserve the entity of the companies which come within the scheme and to effect our purpose simply by transferring their securities from the present holders to a public corporation. By this means it will be possible to combine all that is best in private enterprise and public ownership." (Opposition laughter.) Mr. Strauss went on to say that critics had suggested that it was undesirable for a publicly owned company to be in competition with a privately owned company. Such, however, was likely to be highly beneficial in that both would be subjected to competition, and the Minister would see to it that, in allocation of materials and their price, no unfair advantage was available to the publicly owned companies. (Ironic Opposition cheers.) As to compensation, there could be no more equitable way of ascertaining the value of the steel securities concerned than the Stock Exchange values. It could only be invalid if it were alleged that Stock Exchange values were in any way phoney. Rejection of the Bill was moved by Mr. Lyttelton, who suggested that the only object of the Bill was to pull down every form of private enterprise, and maintained that the Minister had put no semblance of a case for nationalization. Such a case must rest on examination of the present output and efficiency of the industry; on its capacity to fulfil the national needs; and, if it answered these two tests, it must provide everyone within the industry with an adequate reward for his services. The industry could not be attacked on any one of these three grounds; and output had reached an all-time record in October of this year.

Proceedings were enlivened, it is true, on the second day of the debate, when Mr. Churchill denounced the Bill as a burglar's jemmy to crack the capitalist crib, as a "party job to hold the gang together." To pretend, he said, that steel was an issue to which the electorate in 1945 consciously directed their minds was humbug. On those lines it would be sufficient for the Socialist Party, at future elections, to put in their programme the words "et cetera" after any catalogue of legislation reform. The measure was a feature in party tactics intended to keep the Socialist left wing as far as possible in order and the Government in office as long as possible. The debate continued very much on the lines of those we have indicated in our brief survey of the opening day's proceedings, similar arguments being advanced and similar replies given. Which brought us to the third and final session of the debate, according to the nationalization formula, on what has been described in many unbiassed quarters as an "indefensible" Bill.

Sir Andrew Duncan, Chairman of the Executive Committee of the British Iron and Steel Federation, in a remarkable and impressive speech devoted rather to the industrial than the political aspect of the controversy, contended that it was no part of the proposals of the Bill to make for the efficient organization of the industry. The proposals cut right across all the machinery, both industrial and governmental, which had been built up in recent years for the better ordering and the more efficient functioning of all sections of the iron and steel industry, which, under the Steel Board, had afforded the most effective demonstration of the practical possibilities of effective co-operation between the Government and industry. And in their attempt to justify their action, the Government made no effort to prove how efficiency was to be improved. With its growing production the industry was already hard up against the upper limit of coke and coking coal supplies. It was having to use much lower quality than was ever used before the war. The Government owned the coal mines. What were they doing about forward development of coking coal? Could it be claimed that the Government had acquired such experience from the boards already working in nationalized industries as would justify them in the belief that this new corporation could successfully manage the vast complex of industrial activities now to be mopped-up? The technique of running great State organizations was a subject on which the Government must gain more experience even in the industries they at present owned, and there could be no justification for venturing with confidence into a great new range of industrial activities. The conclusion was unescapable that great national interests were being threatened with sacrifice on the altar of political philosophy. Towards the close of the debate, Mr. Eden contended that it had yet to be established that when ownership was transferred the industry would be as efficient as to-day, let alone more efficient. The least that could be expected was that there would be some plan for the future, but there had been no glimmer or sign of one; he believed none existed. And, overall, the mood of the nation was: "Let us see how existing schemes work out. . . . For the moment we have had enough." He concluded that the Government's sole purpose was, by means of the Bill, to bring free enterprise in industry in this country to an end.

The House divided and there voted: For the rejection, 211; against, 373. Government majority, 162. The vote against was the highest yet recorded against a nationalization measure. On the motion to retain the Bill on the floor of the House the Opposition vote was 212—the biggest vote against the Government on any issue in this Parliament.

STARLIGHT AND MOONSHINE

THE Fuel Luncheon Club provides a very useful platform on which ideas can be advanced and ventilated in an informal manner unrestricted by the severe standards of the scientific paper. Professor R. J. Sarjant revelled in this freedom on Nov. 10, in Manchester, when he regaled his audience with racy remarks and acute observations on his recent visit to the United States. The fuel position there is not really unlike that in Europe and, indeed, the world at large. We are all depending more and more on liquid fuel for transport by air, sea, and land, and the world resources in liquid fuel are small in proportion to the whole and their exhaustion is not far distant. True, the estimate of 15 years before stringency sets in has been extant for at least 30 years, but even the opening resources of the Near East are not likely long to keep pace with the ever-growing demand. But even Professor Sarjant, who must have known before he went there that 98% of America's indigenous fuel resources are in the form of coal, was surprised at the vast sums of money which have been and are being devoted to research and development in the conversion of coal to oil. He saw evidence of the expenditure of at least £25 mill. in this direction. The Bureau of Mines alone has had allocated to it the sum of 60 mill. dollars, spread over 10 years, for its synthetic fuels programme; and when it is realized that this institution commands the services of over 5,000 workers the magnitude of their efforts may be appreciated.

Professor Sarjant saw many other examples of the vast sums of money and great numbers of workers which our American friends are putting into the struggle to deal with this situation. Perhaps, however, his most original observation was that on the problem of the education of the necessary scientific and technical personnel. We do not realize fully the fact that a large proportion of the population of the U.S.A. is still unassimilated or only recently assimilated in the main body. Education is not so easy as

in more homogeneous populations. It is, therefore, not surprising that on the admission of competent American judges technological education is somewhat behind the standards of this country. American leaders in this field admit that in the past they have looked to Europe for the fruitful ideas in fundamental research. And expensive installations and large numbers of workers will not make up for paucity of ideas. There is, of course, an advantage in having plenty of money and plenty of men to work out large-scale experiments, and we cannot hope, in our present economic position, to compete on these lines. But there is no reason why we should not go steadily on with, as Professor Sarjant put it, the application of existing knowledge, "built up incidentally in the lean years between the two wars without the accompaniment of the drums or the glare of the spotlights," by which we could save at least 30 mill. tons of coal a year.

Professor Sarjant complained that in the house of the friend with whom he stayed he was "roasted, stifled, nearly reduced to a shadow." He thought his hosts must waste enough fuel in their homes to run the whole of the British iron and steel industry. And yet he must be aware that these high temperatures are maintained with an expenditure of fuel per house, on the average, little or no higher than what fails to keep us warm in more than one room at a time.

All this amounts to just one more cry for a reasonable fuel policy. We have the means to do something—quite a lot—now. As for the future and for the new ideas we must evidently rely more on what Professor Sarjant calls "our educational capacity" than on the initiation of big-scale developments at great cost in money and men.

A CORNISH APPEAL

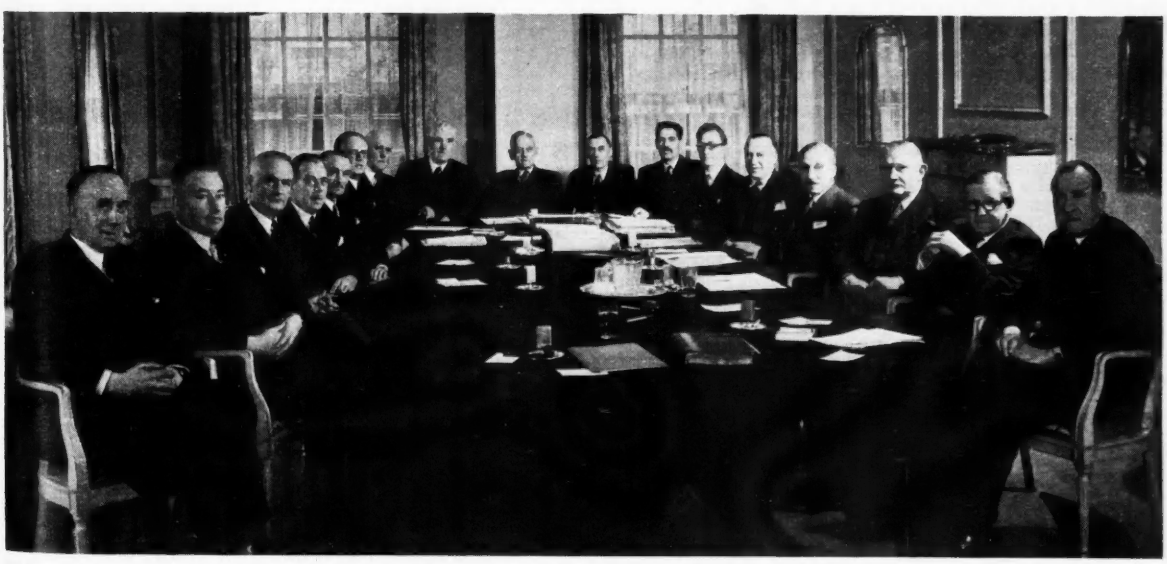
We learn from the Hon. Secretary and Treasurer of the Cornish Gas Association, Mr. J. H. Newton, that an appeal is shortly to be made to the gas industry for financial support to create a fund to endow the maintenance of the fabric of Murdoch House, Redruth, Cornwall. For the purpose a sum of £1,500 to £2,000 will be necessary, and the appeal is being sponsored by members of the Cornish Gas Association. At a meeting of the Association, held at Murdoch House last month, Mr. F. L. Harris, an authority on the life and work of William Murdoch, gave an address dealing mainly with Murdoch's work at Redruth.

GAS INDUSTRY STATISTICS

On a later page we give a few of the data concerning the gas industry contained in the Ministry of Fuel and Power Statistical Digest for 1946 and 1947, and the figures set out indicate the remarkable progress made by the industry despite a major war and all its consequences. The sales of gas in 1938 amounted to 322,100 mill. cu.ft.; in 1947, with a fall in gas for public lighting of something of the order of 10,000 million, they had risen to 446,000 mill. cu.ft. The number of consumers had grown from 11,215,000 to 11,613,000. Coal carbonized in 1947 was 23 mill. tons (19 mill. tons in 1938); gas bought from coke ovens amounted to 54,000 mill. cu.ft. (30,000 mill. cu.ft.). One of the new tables incorporated in the Digest relates to the distribution of gas undertakings in 1947, according to type of undertaking and nature of gas-making process. It is interesting that in that year, in round figures, 11 mill. tons of coal were treated in continuous vertical retorts, 9 mill. tons in horizontal retorts, and 1,500,000 tons in intermittent verticals. Other carbonizing plants (including retorts, static vertical retorts, and coke ovens) accounted for 600,000 tons. The number of persons employed in the industry has grown considerably—from 124,689 to 132,320. The Digest gives a table of occupational classification. From this it is seen that the number employed in administrative work has increased, as also have those engaged on works and plant and on transport work. On the other hand the total employed on distribution work shows a decrease from 49,153 to 39,206.

DEBATING COAL

Although the scope of the new Coal Industry Bill is limited, it seems likely to provide the House with an opportunity for a discussion of the whole field when it comes up for its second reading. An Opposition amendment is expected to make it possible for members to discuss conditions in the coal industry not directly concerned with the Bill. The Bill is a measure of 11 clauses and raises the permitted number of members of the National Coal Board from eight in addition to the Chairman to "not less than eight nor more than 11." The number of members, apart from the Chairman, required to give full-time service to the Board is not to exceed eight, and power is given to the Minister of Fuel and Power to appoint an additional deputy-chairman to the one authorized in the main Act. Clause 2 deals with the extension of the area within which the Board may carry on its activities. This states that Section 1 of the principal Act, establishing the Board and defining its functions, "shall not be limited by sub-section 3 of section 63 of that Act." (This sub-



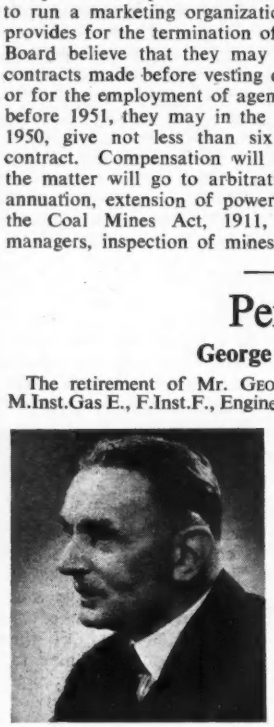
This historic photograph of the Executive Committee of the British Gas Council was taken at a meeting at Grosvenor House, Park Lane. Left to right: G. E. Currier (Bradford); C. H. Chester (Swindon); R. C. Taylor (Torquay); S. E. Whitehead (Southampton); A. W. Lee (Birmingham); T. Brown (South Suburban); Lieut.-Colonel J. Kennington (Great Grimsby); David Fulton (Helensburgh); R. J. Auckland (Cardiff); E. Crowther (Newcastle-upon-Tyne); Michael Milne-Watson (Gas Light); T. B. Scott (Secretary, B.G.C.); J. R. W. Alexander (General Manager, B.G.C.); Colonel H. C. Smith (Chairman, B.G.C.); C. S. Shapley (Leeds); Dr. E. V. Evans (South Metropolitan); Colonel W. Moncrieff Carr (United Kingdom).

section limits the activities to those carried on in Great Britain but not so as to exclude, in the case of selling or supplying, selling or supplying for export or selling or supplying imported goods in Great Britain.) This new measure, it is understood, principally concerns overseas marketing. Under the existing Act the Board has power to export coal from this country but not, presumably, to run a marketing organization outside it. Clause 3 of the Bill provides for the termination of certain long-term contracts. If the Board believe that they may be hampered by the operation of contracts made before vesting day, for the sale of colliery products or for the employment of agents, and which cannot be determined before 1951, they may in the period of two years from January, 1950, give not less than six months' notice to determine the contract. Compensation will be payable and failing agreement the matter will go to arbitration. Other sections concern superannuation, extension of power to make general regulations under the Coal Mines Act, 1911, including qualifications of mine managers, inspection of mines, and the making of returns.

Personal

George C. Pearson

The retirement of Mr. GEORGE C. PEARSON, O.B.E., M.I.C.E., M.Inst.Gas E., F.Inst.F., Engineer-in-Chief to the City of Birmingham Gas Department, will remove a figure well known not only in Birmingham but in the gas industry. Mr. Pearson's whole career has been with the Birmingham Gas Department. At the age of 16 he commenced as laboratory assistant at Saltley Works under the late Mr. Henry Hack. At that time, if Saltley Works was not situated in green fields it was certainly much nearer to them than it is now. In 1901 the annual output of gas in Birmingham amounted to 6,000 mill. cu.ft., a little over one quarter the figure for the last complete year and actually less than that made at Windsor Street Works where Mr. Pearson served for so long a time. After some years in the laboratory he was appointed Coal Test Works Superintendent and was closely identified with the testing of coals, coke, and other raw materials and by-products. In 1915 he transferred to Windsor Street Works as Superintendent and four years later became Engineer. During his service at Windsor Street the works doubled in capacity, chiefly by the introduction of vertical retorts.



In 1936 Mr. Pearson was appointed Engineer-in-Chief. His tenure of office has included the unprecedentedly arduous war years as well as a period of great expansion. A major increase occurred at Saltley, at Nechells a big extension is approaching completion, and at Swan Village a complete new works has just commenced. In addition at Washwood Heath a works larger than anything at present in Birmingham is being planned. To enumerate all the advances and improvements in gas manufacture at Birmingham during Mr. Pearson's time would be a history of gas manufacture over the last half century. During the war in common with the engineers of other undertakings, Mr. Pearson was faced with difficult problems, not only in Birmingham, but also with other undertakings within the Midland Region, where he acted as Regional Gas Engineering Adviser. In 1946 Mr. Pearson was elected President of the Institution of Gas Engineers, and in the same year the King honoured him by making him an Officer of the Order of the British Empire. Mr. Pearson is removing to Devon, where he takes with him the good wishes of a vast number of colleagues and friends.

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Mr. S. K. HAWTHORN has been appointed to succeed Mr. Pearson as Chief Engineer under the control of Mr. Alex W. Lee, General Manager and Secretary. Mr. Hawthorn joined the undertaking in 1918 under Dr. (now Sir Ernest) Smith and transferred to the drawing office at Saltley, where he remained until 1927. Mr. Hawthorn's career as gas engineer commenced as retort house superintendent at Windsor Street followed by service as technical assistant to the Engineer-in-Chief. He returned to Windsor Street as Engineer from 1936 to 1946 and, during these years, Mr. Hawthorn had not only to contend with the abnormal conditions of war but was responsible for much rebuilding of carbonizing and other plants. For the last two years, Mr. Hawthorn has been Deputy Chief Engineer under Mr. Pearson. He holds the Institution of Gas Engineers Diploma, First Class, in Gas Engineering and took the Institution Bronze Medal in 1931. He was elected President of the Midland Junior Gas Engineers in 1933. His quiet and unassuming manner coupled with his extensive knowledge of his profession should serve him well in the important position to which he has been promoted.

In addition to his present appointment as Engineer and Manager of the Tredegar Gas Department, Mr. S. LEONARD FILER has been appointed Engineer and Manager of the Risca Gas Department.

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Mr. HAROLD G. PALMER, Deputy Chairman and Managing Director, has been appointed Chairman and Managing Director of the British Gas Light Company in succession of the late Mr. Henry Woodall. Viscount MERSEY, a Director, becomes Deputy Chairman, and Mr. FRANK T. BROOKES, General Manager and Secretary, has been appointed a Director. Mr. Brookes will continue to hold his present appointments.

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Mr. DOUGLAS WILLIAM TURNER, J.P., has been elected a member of the Board of the Midland Bank, and of the Board of the Midland Bank Executor and Trustee Company. Mr. Turner is Chairman and Managing Director of four companies—Wellington Tube Works, Edward Smith, Job Edwards, and Victoria Tube. He is a Director also of Assam Railways and Trading, Henry Pooley & Son, Parnall & Sons, Rollason Wire, W. & T. Avery, and Wrights' Ropes.

Obituary

The death occurred in an Edinburgh nursing home on Nov. 12 of Mr. JAMES J. SCOTT, for many years Engineer, Manager, and Secretary of the Cowdenbeath Gas Company, a post from which he retired earlier this year.

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The death occurred on Nov. 21, following an operation for appendicitis, of Mr. R. MURDIN DRAKE, O.B.E., Joint Manager of the Association of British Chemical Manufacturers. He would have been 46 years of age on Dec. 2, and had been with the Association since September, 1926.

Diary

Nov. 30.—**Southern Association of Gas Engineers and Managers (Eastern District)**: "The Place of Transport Service in the Gas Industry," H. M. Lawrence, Transport Manager, Gas Light and Coke Company. Gas Industry House, 2.30 p.m.

Dec. 1.—**Western Junior Gas Association**: "The Application of Electricity on Gas-Works," E. L. Evans (Lancashire Dynamo & Crypto, Ltd.). Weston-super-Mare, 3.45 p.m.; preceded by tour of inspection of Weston-super-Mare Gas-Works at 2.15 p.m.

Dec. 1.—**Royal Society of Arts**: Mrs. E. Fraser-Stephen, M.A., on "Solid Fuel on the Home," 2.30 p.m.

Dec. 3.—**Northern Junior Gas Association**: Meeting, Newcastle Paper by W. R. Garrett, "Gas-works Foundations."

Dec. 4.—**Scottish Junior Gas Association**: Joint meeting of Eastern and Western Districts at Edinburgh. Paper by A. C. Bureau and Dr. Lohrisch, of Henry Balfour & Co.

Dec. 4.—**Manchester and District Junior Association of Gas Engineers**: "Public Relations," by S. Hopkinson (Liverpool). Radiant House, Bold Street, Liverpool.

Dec. 7.—**Royal Institute of British Architects**: Discussion on D.S.I.R. trials on house heating systems.

Dec. 7.—**Wales and Monmouthshire Junior Gas Association**: Cardiff. Paper by C. E. Banham.

Dec. 8.—**London and Southern Junior Gas Association**: Visit to Tottenham works of Keith Blackman, Ltd.

Dec. 9.—**Midland Counties Coke Association**: Central Committee, King Edward House, New Street, Birmingham, 2.30 p.m.

Dec. 10.—**Scottish Junior Gas Association (Western District)**: "Income Tax in Gas Undertakings," James Donnelly, F.I.A.C., Accountant, Glasgow Gas Department.

Dec. 11.—**Yorkshire Junior Gas Association**: "The Application of Two Recent Burner Designs," P. F. Kirby (Bradford). Bradford.

Dec. 14.—**British Gas Council**: Central Board, Gas Industry House, 2.30 p.m.

The Minister of Fuel and Power has made the following regulation (Statutory Instrument, 1948, No. 2465, H.M. Stationery Office, 1d.): "Paragraph (1) of regulation (1) of the Gas (Area Boards and Gas Council) Regulations, 1948 (S.I., 1948, No. 2233) (which paragraph among other things provides that the appointment of certain members of the Area Boards and the Gas Council shall be for such term not exceeding five years as may be determined by the Minister), shall have effect as if at the end thereof there were inserted the words: 'so however that in the case of a member appointed before the vesting date nothing in this paragraph shall prohibit his appointment for a term not exceeding five years from the vesting date together with the period commencing on the date of the appointment and ending on the vesting date.'"

PUBLIC HEALTH AND MUNICIPAL ENGINEERING EXHIBITION

BETWEEN 1928 and 1938, the Public Health Congress and Exhibition were held every two years; now, after a lapse of 10 years, the exhibition is again a member of London's distinguished regular events. Held at Olympia from Nov. 15-20, the Public Health and Municipal Engineering Exhibition filled the whole of the Grand and National Halls, the total stand space let being 140,000 sq. ft.—75% more than previously. Three Congress Halls were used for the discussion of 52 papers. The Congress and Exhibition were opened by Mr. John Edwards, Parliamentary Secretary to the Ministry of Health.

There were a number of Government exhibits representing four Ministries and the Department of Scientific and Industrial Research. The latter was primarily concerned with building research, road research, and water pollution research. The building section was particularly interesting, showing commonsense arrangements of plumbing appliances and components in and around buildings for convenient use, economic construction and easy servicing. Methods of speeding up house construction were demonstrated by the Ministry of Works, including a mobile, power-driven earth augur, pre-stressed concrete joists, and light lattice steel booms for placing concrete over the whole foundation area of a pair of semi-detached houses. The Ministry of Food illustrated 100 years' progress in food protection.

Among the trade exhibits, the following were of particular interest:—

Ascot Gas Water Heaters, Ltd., made the best use of their somewhat limited space by presenting a very neat and attractive stand, blue-tiled, and tastefully arranged. The full range of water heaters was shown, comprising the multi-point, bath, sink, and boiling water models; all four discharged into a common stainless steel trough. A number of recessed model rooms illustrated typical installations.

Albright & Wilson, Ltd., exhibited two products: Calgonite, a detergent specially blended for dish-washing and cleaning purposes, particularly for dish-washing machines; and Micromet, a chemical which prevents scale and corrosion in hot and cold water systems. The latter product was most successfully illustrated, and it was emphasized that special dispensers could be easily fitted into the water supply pipes of hospitals and institutions.

The Automatic Telephone & Electric Co., Ltd., showed a "Ripple" system for the centralized control of street lighting and a "Rythmatic" relay known as the type 46 V.S. The new relay retains the dual selective principle, the inherent advantages of which are: mitigation of the "spill-over" problem, immunity from spurious operation, and economy in production and maintenance. The Company also demonstrated its system of road traffic control working on the vehicle-actuated principle.

On a smart red and cream stand, **E. Boydell & Co., Ltd.,** exhibited the Muir-Hill "Hiway" dumpers, models 10 B, 14 B, and 20 B, together with the new Muir-Hill loader and model 100 shunting tractor. The loader had a very considerable margin of stability by virtue of the double articulation, the two main portions of the machine being mounted on three-point suspension, but in opposition. The automatic resetting bucket could be tipped at any height, and whilst the loader, by reason of its construction, could work under a roof 8 ft. in height, it could readily load the largest wagons having an under bucket clearance when tipped of 10 ft. 8 in.

The **British Road Tar Association** was represented by a stand comfortably equipped as a reception lounge, softly decorated in cream, red, and grey.

On a stand carrying the minimum of superstructure, **Broom & Wade, Ltd.,** displayed an impressive range of compressors and pneumatic tools, all effectively finished in dark grey. Four of the compressors were of the portable type, two petrol-driven and two diesel engine-driven, with capacities ranging from 60 to 250 cu.ft. free air per min. at 100 lb. per sq.in. pressure. The smallest set was the new Type SV1, which was suitable for the operation of one heavy duty concrete mixer. A number of stationary air compressors were shown, the largest being the Type TS1, a two-stage, double acting machine having a capacity of 320 cu.ft. free air per min. at 100 lb. per sq. in. pressure.

The **Chaseside Engineering Co., Ltd.** exhibited a new 1-cu. yd. mechanical shovel, which although designed for snow clearing in Canada, proved equally successful for handling coal, coke, or other comparatively light materials. The machine had a new scoop 7 ft. 6 in. wide which shielded the front wheels and thus prevented wastage of material by rolling in or crushing, while the working ground was kept free and clean. Also shown on this neat orange and cream stand were a new brick stacker unit and exhibition models of the 1-ton crane attachment and bulldozer plate which could be fitted to the mechanical shovel.

George Cohen, Sons & Co., Ltd. featured three mobile cranes. The KL 44, the latest model in the Jones crane range had a maximum lifting capacity of 4 tons, powered by a radiator-cooled Diesel engine; grabs, road wheels or tracks were optional. The KL 22 was virtually a smaller model of the KL 44 with a maximum lifting capacity of 2 tons. This model was capable of full-circle slewing on a steel race path with Look rollers, adjustable for wear. A much lighter model, the KL 15, was also shown and the exhibit included a selection of contractors' tools, including hand and electrically operated lifting gear.

The stand of the **Consolidated Pneumatic Tool Co., Ltd.** was arranged in three sections covering the interests of (a) public works contracting, road work and building, (b) quarrying, and (c) workshop and maintenance. The exhibits included portable and stationary air compressers, breakers, pile drivers and clay-diggers, pumps, electric vibrators, pneumatic impact wrenches, pneumatic and electric drills and grinders, and Duff-Norton jacks and dresser clamps.

The Aviation Division of the **Dunlop Rubber Co., Ltd.** displayed a range of flexible pipes catering for high, medium and low operating pressures. They were intended for conveying liquids and gases, under pressure or suction, where installation difficulties prevented the use of rigid pipe. An end coupling was also shown which was designed to provide a leak-proof seal at the maximum pressures for which the hose was rated.

An unusual and attractive stand was that of **Electrolux, Ltd.** which skilfully contrasted the old fashioned kitchen with its inconvenient sink and unhealthy larder with a hygienic modern installation; the refrigerator featured was the M.151 built-in type. It was emphasized that the Company has supplied over 80,000 temporary prefabricated houses with refrigerators. The Electrolux Z.30 suction cleaner was also shown.

Visitors interested in screening, grading, and filtering found much to interest them on the stand of **G. A. Harvey & Co. (London) Ltd.** where Harco perforated metals were to be seen. These ranged from wire cloth to the durable vibratory and rotary wire screens. Also shown were examples of zinc and copper roofing, gilled tube, and numerous other products.

Hills (Patents) Ltd. exhibited a wide range of signs and number plates, labels and indicators in metal either in the form of pressing or appliqué work. Two interesting hand-operated "machines" were the Hilpress and the Hilshear; the former having an estimated 3 tons compression in punching operations.

Undoubtedly one of the most successful stands in the exhibition was that shown by the General Chemical Division of **Imperial Chemical Industries, Ltd.** which featured three products. Liquid chlorine, used for the treatment of trade effluents, &c., was illustrated by an excellent large working model showing water purification and sterilization; Chloros was also featured. In the second and smaller part of the stand, a huge and fearsome suspended model housefly drew visitors' attention to Gammexane insecticides, and the morbidly inclined could inspect various pests through microscopes.

Three mobile cranes formed the main exhibit on the stand of **R. H. Neal & Co., Ltd.** The most recent model was the 2-ton diesel-driven, pneumatic tyred Type NM, fitted with a 35-ft. long lattice jib.

Newton Chambers & Co., Ltd. featured a Model 304 excavator in their range of NCK machines. This had a shovel bucket capacity of ¾ cu. yd. and was the diesel-driven, crawler mounted type, equipped with face shovel attachment. It was convertible for dry-shovel, dragline, crane and grab operation. Also shown on this pleasant grey and red stand were detailed examples of the main constructional features of this machine and a range of photographs showing the work it does in various parts of the world.

J. C. Oliver, Ltd. exhibited the International diesel-engined crawler tractor Model TD 24, fitted with a bull grader and power control unit. This impressive machine was 140 drawbar h.p. and was built with Planet Power steering. This latest and largest of the International range was "supported" on the stand by a full range of International service exchange engines, fuel pumps, starter motors, magnetos, &c., and a range of spare parts.

The complex variety of products exhibited by the **Rawlplug Co., Ltd.,** defies description, but particular mention may be made of the neat and effective electric hammers which were capable of delivering 3,000 blows per minute and would bore holes from ¼ in. to ⅝ in. For the rest, spring and gravity toggles, bolt anchors, white bronze plugs and screw anchors, and many others of the well-known Rawlplug fixing devices were demonstrated.

Turners Asbestos Cement Co., Ltd., on a stand finished in terra cotta and cream, exhibited their usual range of Everite asbestos cement pressure pipes. Of particular interest were samples of pipes used under varying conditions and demonstrating their durability.

LONDON AND COUNTIES COKE ASSOCIATION

THE Fifteenth Annual General Meeting of the London and Counties Coke Association—probably the last under its existing constitution—was held at Grosvenor House, Park Lane, on Nov. 15, under the Presidency of Mr. **Frank H. Jones,** who formally moved the adoption of the report and accounts for the year ended June 30.

Colonel **H. C. Smith,** Chairman of the Central Committee, seconded their adoption and mentioned briefly some of the activities of the Association during the year. The technical department, he said, was now up to pre-war strength and they had found it necessary to establish a statistical department to cope with the many demands received for information of all kinds. In addition to the staff's normal duties they performed many functions on behalf of the Coke Directorate, the National Federation of Gas Coke Associations, the Gas Coke Export Association, the Gas Coke Export Corporation, Ltd., and the Solid Smokeless Fuels Federation.

Contacts with distributors had continued on a firm and friendly basis. The Association's proposals for standard margins had been well received, as was also an additional 4d. per ton to meet increases in cartage costs which they were able to allow out of levy funds. The Central Committee had agreed to aggregate each distributor's tonnage of coke taken in each gas company's area of supply; this would involve a slight decrease in revenue in the case of some members, but a close examination indicated that it would not seriously affect any individual member. The difference to distributors, however, would be appreciable.

The levy fund continued to be of great advantage in assisting marketing arrangements. Its value lay largely in its elasticity; it could be adjusted to meet changes in the circumstances of coke supplies. At present the fund was being used mainly for the equitable distribution of coke within the area, but they were also, with its aid, importing considerable tonnages of large coke from Scotland and Lancashire. Their coke advisers were continuing to devote their attention to problems which would lead to the tidying up and improvement of their price arrangements. They had two particular matters under consideration at present—to simplify price schedules and to try to evolve a more scientific basis for fixing village prices.

High Stocks of Coke

High stocks of coke had been causing concern to many members. Stocks were considerably higher than they were last year, but they were not, in fact, any higher than they were prior to 1940. There was one great difference, however, and that was that in those days they were free to market coke as they thought fit. They knew that they must stock coke during the summer months in order to be able to meet winter demands. Now, however, they were subject to various controls and consequently high stocks were, and were likely to be, a much greater embarrassment than in normal times. It was, however, interesting to note that the present stock in the Association's area of about 380,000 tons compared with over 500,000 tons at a similar period in 1938.

From the sales point of view probably the most disturbing feature of the stocks was that they were unbalanced. There was a shortage of large coke and a surplus of sized coke. Many new markets had been opened up for large coke. They were now exporting coke for the first time since 1940 and already this year some 200,000 tons had gone from the area to Scandinavia in addition to a few thousand tons to the Channel Isles. During 1948 it was probable that 260,000 tons would be exported from the Association's area alone. Furnace coke was being supplied to the blast furnaces at Corby and considerable tonnages were going also from the western part of the area to South Wales to replace hard coke used in large industrial plants. Large quantities of other fuels in industrial markets in South Wales had also been replaced by gas coke, these fuels thereby being made available for export.

Demand for Large Coke

All these demands had been for large coke. Their sales efforts were now principally required in connexion with domestic or sized coke markets. Everything pointed to the fact that the sellers' market had ended and that they must be prepared to launch vigorous selling campaigns. During the pre-war life of the Association their efforts to sell coke by improving quality, developing the use of new appliances, technical assistance to members and to consumers, and by publicity gathered momentum rapidly each year. With the outbreak of war they had to close down their selling scheme. Unfortunately they were not able to start from where they left off, but had to build up their organization again to its 1939 state of efficiency before they could begin to improve on their pre-war methods. They could not do everything they wished until coke was freed from controls. The National Federation of Gas Coke Associations was continually in touch with the Ministry of Fuel and Power with the object of seeing that controls were removed at the earliest possible moment.

This they did not expect could be done all at once, but certain easements had been granted. For instance, they were now enabled to export coke; domestic consumers were allowed to take their permitted quantities during the summer months, and local fuel overseers were empowered to be much more lenient with regard to the granting of licences. While they were grateful for these concessions they were by no means all they would like to see, and they were still asking for relaxation of the restrictions applying to dual registrations, and also for an increased allowance of coke to domestic consumers.

Technical development was of the greatest importance in the gas coke industry. Successful marketing rested on the basis of improved coke quality and on the development and perfecting of methods of utilization. In many respects gas coke as a fuel was superior to the coal from which it was made. It was smokeless, gave a higher degree of radiant heat and as a consequence was capable of being used with better efficiency. On the other hand it was much more selective as to the conditions under which it was burned. It had been the hard task of the Association to expand and develop gas coke sales in industrial and domestic markets which were already equipped with plant designed to burn bituminous coal. This had necessitated evolving and improving, in co-operation with plant manufacturers, coke burning appliances which showed greater efficiency in operation and were more attractive in appearance.

Technical Co-operation

The need for such technical co-operative work was fully realized when the Association was formed, and the Technical Committee had functioned actively and continuously since October, 1931. Gas coke was a manufactured fuel and cokes as produced differed considerably, depending on the type of carbonizing plant and the coal carbonized. Uniformity in size and quality were essential not only to ensure its proper use but to retain the confidence of consumers. Satisfactory standards of quality and sizing and uniformity in those matters had always ranked high among the objectives of the Association.

Standard sizes of graded coke were agreed as early as 1932. Those sizes, which were adopted by the Institution of Gas Engineers in 1942, were now generally used throughout the area of the Association. When the standard sizes were first issued a comprehensive report on coke preparation was circulated to producers as a guide to the type of screening plant to be installed. After the issue of the Simon Report it was decided to re-examine the question of coke quality and preparation in order to bring up to date the earlier report.

It had already been found possible to issue to members tentative standards for domestic coke quality. Work on methods of coke production and handling was being actively pursued and the co-operation of the Gas Research Board had been obtained in connexion with certain problems regarding coke cutting and screening. In the field of utilization improved and more attractive appliances had been steadily developed. The L.C.C.A. Approved Appliances Handbook was passed to the National Federation in 1944, and the Appliances Sub-Committee was taking an active part in the work of the Ministry of Fuel and Power Committee dealing with the testing and approval of appliances for installation in low income group housing.

The technical work of the Association covered a wide field of activity, of which members received notification from time to time, and he would only record the value of the part played by the central technical advisory and consultative service in the development of the efficient use of coke. Under the direction of the Technical Committee that service had been made freely available to consumers and producers alike, and it had been much appreciated.

Remarking that "this is likely to be our last annual meeting," Colonel Smith briefly reviewed the work of the Association from its formation in 1930 and concluded: "We do not know what the future of the Association will be, but there is no doubt that the work which it started nearly 18 years ago and which has been developed successfully during its lifetime must be carried on and improved if the industry and its consumers are not to suffer. We are confident that we shall hand over to the new owners of the gas industry, not a derelict Association but a live and efficient organization, ready to play its full part in the successful progress of the industry."

President Re-elected

Mr. **S. E. Whitehead** (Southampton) proposed the re-election of Mr. Frank H. Jones as President. The family name was, he said, almost a household word in the industry. His father had served the industry well in the past, and recently his son had been appointed Chairman of the East Midlands Area Gas Board and thus a member of the Gas Council. Mr. Frank Jones himself had given them very great help, for which they were sincerely grateful.

Mr. **J. Hunter Rioch** (Cambridge) seconded, remarking that Mr. Jones's services were too well known to need further comment.

The **President** briefly returned thanks and promised never to desert a sinking ship. Whatever the future might hold in store he was of the opinion that they could not get on without some such organization as theirs.

On the proposition of Mr. **R. Prince** (Brighton), seconded by Mr. **W. K. Tate** (Portsmouth), Messrs. Cash, Stone & Co., were re-elected Auditors.

The county nominations for 1948-49 were formally presented by Miss Wooster, General Secretary, and approved.

On the motion of the **President,** seconded by Colonel **Smith,** a vote of thanks was accorded to Miss Wooster, General Secretary, Mr. J. O. Cooke, General Manager, and the staff, for their services during the past year.

Miss **Wooster,** responding, said they all enjoyed their work and were a happy family. They looked to the future with great optimism, feeling that if their work was worth while it must go on and flourish. There was, she believed, a great future in the marketing of coke. Though much had been done in the past 17 years there was still a big task ahead. When they spoke of coke they referred to many different types of product, and she ventured to suggest that they might aim at producing fuels in accordance with particular specifications and calling them by another name.

Mr. **J. O. Cooke** also briefly replied and acknowledged the co-operation of a loyal, enthusiastic, and hard-working staff.

Order Out of Chaos

Before the meeting some 250 members and guests attended the annual luncheon, at which Mr. Frank H. Jones presided, with Mr. Alfred Robens, Parliamentary Secretary to the Minister of Fuel and Power, as the principal guest.

Mr. **John Charrington,** Chairman of the Coke Distributors' Branch, proposed the toast of the Association—an Association which he said he had always regarded as a model of organized marketing. He recalled with satisfaction a summer day 17 or 18 years ago when Mr. Robert Foot asked him to lunch with him and put to him the idea of introducing order out of chaos. At that time they were not on speaking terms with the hard coke interests, and there were a number of gas undertakings who would not become associated with the movement. With the help of Mr. Jack Hopper he worked for some months and eventually gained sufficient support to go back and tell Mr. Foot that the distributors were ready to back the Association. Since then the history of the Association had been one long story of development. When Mr. Foot was called away to the B.B.C., Colonel Smith, a staunch supporter from the start, stepped into his place. Subsequently Mr. Boon decided to join Mr. Foot in his new organization, and again the Association was fortunate in finding an able successor, this time in the person of Mr. Cooke. In the early days they had Mr. Colwell and Major Blow fixing price schedules and their patience and enthusiasm for the work gradually brought about an ordered state of affairs throughout the area; in Mr. Champion and Mr. Evans they had two splendid successors.

The fact that the small boat had weathered the storm was due in no small measure to the gyroscopic influence of Miss Wooster, without whom it would be impossible to picture the Association. With the approach of the nationalization of the gas industry there were some people who failed to look beyond the winter to the spring, but he believed that the spirit of the Association would last, and there was nothing illogical or unreal in wishing the Association long life and prosperity.

The **President,** in a very brief reply, said that he had recently seen large quantities of coke in gas-works yards. Coke did not improve by being stacked higher and higher. If coke could be delivered while the roads were dry and there were no fogs it would be a very good thing indeed.

The Guests

Colonel **H. C. Smith** proposed the toast of the guests, and referred with special pleasure to the presence of Mr. Foot; Mr. E. C. Woodall; Mr. L. P. Ingram (President of the Southern Association of Gas Engineers and Managers); Mr. F. Allen (President of the Eastern Association); Dr. E. V. Evans; Dr. H. Hollings; Dr. D. T. A. Townend; Dr. A. Parker; Sir Ernest Smith; Dame Vera Laughton Mathews; Lord Hyndley; Mr. A. E. Sylvester; Mr. M. Milne-Watson (Chairman, North Thames Area Gas Board); Mr. C. H. Chester (Chairman, South-Western Area Gas Board); Mr. G. le B. Diamond (Chairman, West Midlands Area Gas Board); Mr. W. K. Hutchison (Chairman, South-Eastern Area Gas Board); Sir Donald Fergusson; Sir Guy Nott-Bower; Mr. R. Kelf-Cohen; Mr. I. M. Forsyth; Mr. J. S. Forrest; and Mr. Alfred Robens, whose name he coupled with the toast. Mr. Robens had, during recent months, he said, made a very careful study of the gas industry, having at times continued those studies until the early hours of the morning, and on occasions for more than 24 hours on end. They did not know what the future of their Association was going to be, but whatever it proved to be he felt they were handing over an organization which was capable of doing magnificent work. Whoever was called upon to take part in those activities would work with as much enthusiasm under the new regime as they had under the old.

Mr. **Alfred Robens,** in responding, said he realized that the nationalization of the gas industry had not been greeted with great joy by everybody. Their President was one of those who would not be associated in the same direct way as before with the administration of the industry after vesting date. but he would have the satisfaction of seeing his son carry on the great traditions of his family as Chairman of the East Midlands Area Gas Board. Regarding Colonel Smith's references to the uncertain future of the Association, he reminded him that under the Act the future structure of the Association would be a matter for the Gas Council, of which Colonel Smith himself was Deputy Chairman, to settle.

Coke Controls

Both during and since the war there had been continuous and close contact between the Association and the Ministry, and Colonel Smith and Miss Wooster were both members of the Consultative Committee with whom they had discussed controls affecting coal and coke and he wished to acknowledge the help and co-operation they had received from the Association. They had had to meet many difficulties in connexion with the control of coke, but the flexibility of the Association's arrangements had enabled them to deal with them reasonably satisfactorily. They had had to enforce substitution of coke for other fuels, particularly in the domestic sphere, to eke out the supplies of house coal and to take the place of other boiler fuels. At other times they had been unable to meet essential industrial demands and had had to restrict domestic supplies.

Late in 1943, in the face of apparently ample stocks, restrictions on domestic coke were lifted, but in a few months the position had changed so much that the restrictions had to be reimposed. From 1944 onwards strenuous efforts were made to ensure equitable distribution of coke supplies and the system of programming supplies for industrial and large non-domestic users and of bulk supplies to the retail distributors had been very effective. It was difficult to divorce a review of the coke position from a review of the fuel position generally. In the fuel crisis of 1947 the coke position was extremely difficult very largely because of the stringency of the gas coal position. The output of gas had to be maintained at a very high level and they had to increase the manufacture of carburetted water gas, a step which in turn reduced their output of coke and diverted some of the available supplies.

Since that time the coke position had improved considerably. They had reached a stage at which industry could be supplied with full requirements. There had been a considerable easing of the position in regard to domestic consumer requirements, and they were now exporting coke, and were intending to continue to do so to the limit of their handling capacity, for exports were very necessary in the interests of the country's economy. Since coke stocks at gas-works were higher than for some years there was some feeling that the restrictions on domestic consumers' purchases of coke could be relaxed. That feeling had been represented to the Ministry and they had very carefully considered it in the light of the general fuel position and the prospects for the coming winter. The extent of the severity of the winter was a matter they could not predict, and they had to remember that overall coke stocks were still less than they were in 1943 when, as he had said, they de-restricted coke and ran into difficulties which compelled them to reimpose the restrictions after a short time.

A Bright Future

With regard to the future there was, he thought, a growing appreciation among housewives of the virtues and attractions of smokeless fuels. Large numbers of new houses were being built all over the country, many containing smokeless fuel appliances; at the same time there was an increasing potential demand for coke through the shortage of many of the smokeless fuels with which coke had to compete in the home market. Such a situation provided a splendid opportunity for cultivating the domestic demand for coke. Some such efforts were now being made and with an increased availability of coke he anticipated that they would be intensified.

Reference had been made to the future of the Association. He was convinced that the experience and the work of the Association had proved its value to the industry and he was certain that the appointments which had been made to the Gas Council had met with general approval in the industry. The men who would be responsible for running the industry were well aware of what had been achieved by this and similar associations. The Ministry would not interfere in the day to day administration of these publicly owned industries, but for his own part—and they at the Ministry took the view very strongly—believed that the future of their Association could well be left in the hands of the Gas Council.

GAS INDUSTRY STATISTICS

THE Ministry of Fuel and Power Statistical Digest, 1946 and 1947, covers the gas industry, including additional tables. The following are extracts from the mass of data collated in the Digest, which is obtainable from H.M. Stationery Office, price 3s. net.

Number of Gas Undertakings, Fuel Used, Gas Made, and Gas Brought from Coke Ovens, 1946-47

	1946	1947
Number of undertakings—		
Statutory :		
Local authorities*	274	275
Companies	406	402
Non-statutory†	366	361
Total	1,046	1,038‡
Fuel used for gas making§		
Coal (1,000 tons)	22,539	22,554
Gas oil (1,000 gall.)	132,449	171,765
Gas made (mill. cu.ft.)		
Coal gas :		
Statutory	319,549	322,870
Non-statutory	9,726	9,842
Total	329,275	332,712
Water gas :		
Statutory	79,061	84,463
Non-statutory	644	679
Total	79,705	85,142
Other gas :		
Statutory	8,586	13,196
Non-statutory	1,289	1,363
Total	9,875	14,559
Total gas made :		
Statutory :—		
Local authorities	152,894	158,945
Companies	254,302	261,584
Non-statutory	11,659	11,884
Total	418,855	432,413
Gas brought from coke ovens (mill. cu.ft.)	53,088	53,984
Total gas available (mill. cu.ft.)	471,943	486,397
Total gas available (mill. therms)	2,240	2,310

* Five joint boards are included in the number of local authorities.
† Certain undertakings not primarily engaged in making or distributing gas for public supply are excluded from the "Number of Undertakings," but the fuel used, gas made, &c., by these undertakings are included in the relevant parts of this table. There were 26 of these undertakings in 1947, having 18 works making gas.
‡ The number of works in which gas was made (including works with stand-by plant) at the end of 1947 was as follows : Statutory—Local authorities, 285 ; companies, 435. Non-statutory, 342.
§ In addition to fuel used for gas making in 1947, 162,000 tons of coal and 1,193,000 gall. of gas oil were used for other purposes.

Fuel Used by Gas Undertakings According to Nature of Gas Making Process, 1947

Nature of making process	Coal Tons	Coke* Tons	Total Coke breeze Tons	Gas oil Gall.
Carbonization—				
Horizontal retorts	9,381,508	—	—	—
Continuous vertical retorts	10,892,957	—	—	—
Intermittent vertical chambers	1,547,623	—	—	—
Other carbonizing plants (inclined retorts, static vertical retorts and coke ovens)	589,634	—	—	—
Total	22,411,722	—	—	—
Oil gasification	—	—	—	5,943,335
Other gas making processes—				
Water gas (blue and carburetted)	9,418	1,448,316	43,539	163,139,274
Producer gas plants (exluding producers making gas for firing)	79,584	32,475	1,335	125,637
Processes for complete gasification (Tully gas plants, &c.)	52,937	2,308	—	188,086
All other gas making processes (tar gas plants, &c.)	—	—	1,115	2,368,668
Total	141,939	1,483,099	45,989	165,821,665
Total fuel used for gas making	22,553,661	1,483,099	45,989	171,765,000
Additional fuel used—				
gas making†	139,008	627,933	1,012,907	732,483
All other purposes‡	23,318	106,031	174,318	460,383
Total	162,326	733,964	1,187,225	1,192,866
Total all uses	22,715,987	2,217,063	1,233,214	172,957,866

* Excluding coke used for heating retorts.
† Including fuel used for boilers, cranes, &c.
‡ Including fuel used in by-product plants, showrooms, offices, &c.

Occupational Classification of Persons Employed at Gas Undertakings, 1946-1947

Occupation and sex	December, 1946	December, 1947
Administrative, technical, clerical, &c.—		
Male	19,323	19,407
Femal (full time)	6,261	6,357
Female (part time)*	234	250
Total	25,818	26,014
Meter readers and collectors—		
Male	4,709	5,937
Female (full time)	361	291
Female (part time)*	17	14
Total	5,087	6,242
Works and plant—		
Stokers, labourers, and other retort house workers :		
Male	25,213	24,961
Female (full time)	40	13
Female (part time)*	4	2
Total	25,257	24,976
Others :		
Male	30,989	31,128
Female (full time)	786	536
Female (part time)*	111	133
Total	31,886	31,797
Total works and plant :		
Male	56,202	56,089
Female (full time)	826	549
Female (part time)*	115	135
Total	57,143	56,773
Transport—		
Male	3,776	3,983
Female (full time)	7	11
Female (part time)*	—	1
Total	3,783	3,995
Distribution—		
Gas fitters, plumbers, and service layers :		
Male	16,932	16,838
Female (full time)	9	11
Female (part time)*	—	—
Total	16,941	16,849
Others :		
Male	22,631	21,642
Female (full time)	519	527
Female (part time)*	169	188
Total	23,319	22,357
Total distribution :		
Male	39,563	38,480
Female (full time)	528	538
Female (part time)*	169	188
Total	40,260	39,206
Total employment—		
Male	123,573	123,896
Female (full time)	7,983	7,746
Female (part time)*	535	588
Total	132,091	132,230

* Part time female workers are counted as half units only.

Number of Gas Consumers, 1946-47 *and Therms per Consumer, 1947*

	1946	1947	Terms per consumer, 1947
Number of consumers*—			
Mainly domestic :			
Prepayment	7,599,548	7,634,980	120.3
Credit	3,179,311	3,287,171	143.7
Total	10,778,859	10,922,151	127.4
Industrial	105,431	105,094	3,960.4
Commercial :			
Shops, offices, &c.	501,951	511,041	396.1
Local authority establishments	53,265	54,293	807.6
Government Departments	15,708	14,389	656.2
Total	570,924	579,723	441.1
Service Departments	6,796	5,690	1,111.9
Total	11,462,010	11,612,658	180.4

* These figures relate to the number of main meters, *e.g.*, in cases where one account is rendered in respect of more than one set of premises each main meter is counted as a separate consumer.

(*Continued on p. 443*)

GAS IN FRANCE

(From Our Special Correspondent)

THE note struck by the Editorial in the current issue of the *Journal des Usines à Gaz* is one of optimism. "In the middle of the difficulties of the day the activity of Gaz de France is reassuring. Step by step, and at a rate even more rapid than one dared to hope, one sees the plan of equipment taking shape and the broad outline of the future organization of the manufacture and distribution of gas." It is hoped that the recent cuts in the allocation of credit will not result in materially slowing down the execution of measures taken or proposed for the modernization of existing installations and the growth in their productive capacity.

The end of the war found works and distributive systems, mostly in poor condition, at saturation point. In spite of that, according to statistics just published, 2,479 mill. cu.m. of gas was sold in 1947 by undertakings included in Gaz de France against 1,769 mill. in 1938 for the whole of France. To this increase there was indeed the contribution of more than 50 mill. of natural gas, but the annual production proper of gas has reached the figure of 2,324 mill. cu.m. (say, 80,000 mill. cu.ft.). It would be impossible for existing works to do more, and they will certainly have difficulty in maintaining this output if the new plant now under construction is delayed by default of available financial provision. Economies thus realized would be only apparent and would only retard the recovery of the industry.

In spite of the heavy handicap of the war, the French gas engineer is equal to his task. The noise of battle had hardly died away when numerous missions went abroad, to Great Britain, the U.S.A., &c., to inform themselves of progress that had been made while France was isolated. The influence of this information is already seen in the choice of plant and methods. The participation of French engineers in the 1949 meetings in London of the International Union of the Gas Industry will be the event of the coming year.

The main technical article is a mathematical treatment of conditions in a gas transmission main under varying loads. Every modification in the pressure or the feed of gas either at the supply or the delivery end caused, for instance, by the stopping or starting of the compressor, or an increase or decrease in consumption, results in variations in the pressure and speed of travel of the gas at every point in the main. The equations connecting all the variables are very complicated. M. P. Renouard proposes simplifications and compares results in certain cases with observed quantities. The two cases treated are: (1) The time necessary to establish normal throughput; and (2) the time necessary to establish equilibrium—that is, the main being in regular working, the compressor is stopped, the valves are closed, at the end of what time is the pressure equal throughout the main? The agreement between results calculated by M. Renouard's formulas and those observed is shown to be very close.

Reinforced Concrete Construction

M. Maurice Veillon continues his series with sketches of construction in reinforced concrete. Most of the details illustrated relate to general building construction. Gasholder tanks, however, are referred to separately. Gas engineers have hesitated to use reinforced concrete for this purpose mainly on account of the difficulty of securing water-tightness. M. Veillon, however, is of the opinion that it can safely be used for small or medium diameters of the order of 15 to 25 m. P. Pikeity and Petuard & Considère have executed designs with vibrated concrete and water proofing compounds. The advantages of reinforced concrete tanks are evident from the point of view of foundations. These are simplified, the tank rests direct on the soil without the necessity for access to the underside of the bottom of the tank, and if partly buried there is no need to leave space round the outside of it. It may rest direct on rough concrete, and if piles are necessary the bottom of the rim may be built monolithic with the pile capping. Five recent examples of this construction are cited, the biggest being at Clermont-Ferrand, where the tank is 31.80 m. (about 140 ft.) in diameter by 12.20 m. (about 40 ft.) in height. Appearance is taken care of by a tasteful arrangement of vertical buttresses and lateral ribs, the buttresses being placed under the columns of the holder, forming a sort of decoration in squares. If the tank is half buried the only decoration will be the annular platforming. Concrete constructions in general lend themselves to æsthetic treatment of lines, masses and surfaces. The use of sculpture, while limited in industrial subjects, has been practised and should be mentioned in this connexion. This instalment of M. Veillon's thesis is again illustrated by many excellent annotated "freehand" sketches which are most informative in character.

News items include the announcement of tests in progress at the Maintenon Gas-Works with the GEIM oil-gas plant—an oil-fired producer. The trials undertaken consist in placing a boiler before the GEIM generator to obtain superheated steam and an externally heated vaporizer, by which means there is a cracking of oil-vapour (and not liquid oil) in the presence of superheated steam (hydro-cracking). The results are said to be very encouraging. A gas of C.V. 4,200/4,400 cal/cu.m. is obtained with low density and low inert content. This gas had been distributed to consumers for eight days without complaint. Tests at Saint-Brieuc have confirmed that paraffinous distillates can be used in the GEIM plant provided that operation is not too intermittent; otherwise costs of heating become prohibitive.

Central Heating

A gas-fired central-heating installation applied to a block of modern flats is described with schematic lay-out. The principle is that of the distribution of hot air somewhat similar to that used in the U.S.A., the heater being placed in the kitchens with air introduced through the basement. The Ministry of Reconstruction and Town Planning is interested in this proposal. The efficiency is said to be 80% and the operation, thermostatically controlled, is automatic. The installation permits the addition of air-filtering with "anticepticizers," odorizers, fresh air, &c. First cost (in money and materials) and running costs are said to be low. An experimental installation is to be set up at Calais under the auspices of the Ministry.

Gas made for sale during the month of August shows an increase of 6% over the corresponding month last year. Coal used showed an increase of 19%, but there was a big drop, 54%, in oil consumption.

GAS INDUSTRY STATISTICS *(Continued from p. 442)*

Quantity of Gas Sold, 1946-47

			Million therms (1947)
Gas sold (mill. cu.ft.)—			
Mainly domestic:			
Prepayment	186,583	194,263	918.9
Credit	93,582	99,407	472.2
Total	280,165	293,670	1,391.1
Industrial	88,718	92,145	416.2
Commercial:			
Shops, offices, &c.	39,456	42,248	202.4
Local authority establishments ...	9,145	9,241	43.9
Government Departments	2,083	1,956	9.4
Total	50,684	53,445	255.7
Service Departments	1,854	1,327	6.3
Public lighting	8,113	5,499	25.8
Total {Mill. cu.ft....	429,534	446,086	—
{Mill. therms	2,004	—	2,095.1

ENCOURAGING NEW INDUSTRIES

To encourage new industries in Lanarkshire, nearly £1 mill. is to be spent on improving gas supplies, according to reports submitted to Lanark County Council at its meeting in Glasgow on Nov. 3. Councillor Tom Rennix (Uddingston), Convener of the County Gas Committee, disclosed details of two major projects, one in connexion with the supply of industrial gas for a £3 mill. extension to Stewarts & Lloyds' steelworks at Mossend, the other for the extension of the gas-works at Uddingston.

Among the principal installations at Stewarts & Lloyds' new works, said Mr. Rennix, will be three additional melting furnaces to supply a new tube mill for producing pipelines for oil companies, all for export. The firm has an assurance from the oil companies that their requirements will ensure at least seven years' operation of the plant. Stewarts & Lloyds estimate that they will employ approximately 1,100 more men in their new steelworks and tube works at Mossend. The total quantity of gas required by the firm may be more than 1,000 mill. cu.ft. per year.

Referring to the extensions proposed at Uddingston gas-works, Mr. Rennix said that the tendered price was £495,000, although certain adjustments might be necessary and these would be reported to the Council later. "I confidently look forward in the near future to gas loads which will justify the County Council in completing their gas manufacturing centre at Uddingston at a cost in excess of £750,000," said Mr. Rennix.

The cost of introducing gas supplies to the new industrial estates at Newhouse, Blantyre, Larkhall, and Carfin would exceed £80,000. These industrial estates were still in the early stages of construction and total gas requirements would not be known for some considerable time. Laying gas mains to new housing schemes would cost another £71,000.

TARIFFS*

By F. M. BIRKS, C.B.E., M.I.C.E.,

Deputy Governor, Gas Light and Coke Company

LAST year (" GAS JOURNAL," Nov. 19, 1947) I spoke of the use of simple single line charts to show the facts underlying the supply of heat and energy by a public utility undertaking. To-day I propose to take that subject to the next stage—namely, the controversial and ever fascinating study of tariffs.

It will be remembered that in 1945 (" GAS JOURNAL," March 9, 1945) Mr. A. E. Sylvester gave an address to the Southern Association of Gas Engineers and Managers in which he dealt with tariffs in great detail. He uttered a warning and also a prophecy which has come to pass very much sooner than he or any of us could possibly have foreseen, while the methods of charge he advocated are being adopted more widely every day. Nevertheless, there are still so many systems of charge being used by public utilities as to indicate that the fundamentals may, even now, not be generally understood, for full knowledge usually begets simplicity and a logical solution.

It may be helpful at the outset to recapitulate some of the salient points of my last address, which was based mainly upon the correlation between atmospheric temperature and gas consumption, their combined influence upon the load factor, and the operational characteristics imposed by them upon gas-making plant.

My theme was developed from two fundamental single line charts, which showed the frequency distribution of temperature and gas consumption for the 365 days of a year, the temperatures and consumptions being assembled in ascending order. From these charts it was possible to establish an empirical law relating these two variables so that increments of load could be predicted from falling temperatures, and this finding has been invaluable to us in predicting our gas demand, formulating a policy for programming repairs, and in forecasting the over-all availability of gas manufacturing plant. The development of this work has revealed many interesting facts, but I do not propose to say anything further about this aspect at present, because I hope that shortly the colleague whose careful and accurate observations detected the underlying relationships will contribute a paper on the subject.

Since presenting my address last year, I have received a communication from an observer in the United States who had been working on similar lines for some time, and his conclusions tallied with our work here with surprising accuracy. The work in the United States was, of course, carried out on data, for weather conditions, somewhat more stable, but with a greater over-all temperature range than in this country.

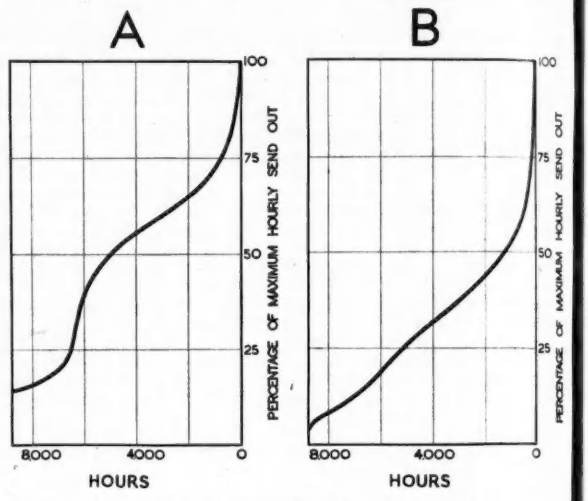
On the Continent of Europe, also, certain authorities are using the single line correlation chart to show the annual output of electricity, gas, and even thermal requirements of district heating. Some of the foreign publications have indicated that much of the work is being duplicated abroad and evidence is available of very close corroboration of at least one observer in substantiating the accuracy of our single line curve.

To those of you who may not be familiar with this curve, I should explain that its main virtue lies in its ability to present a clear and simple picture of the load characteristics required from the production plant and also the load factors associated with sections or blocks of load, introduced at any particular temperature level.

Now there is an important difference between the gas and electricity industries in the way that consumer demands affect the capacity and characteristics of the production plant. In the gas industry there is usually sufficient storage capacity to smooth out variations of demand within the day and also at week-ends, so that in this case the manufacturing plant output is affected primarily by the day-to-day changes of demand, and these in turn are influenced mainly by seasonal temperature variations. It is therefore only the pumping plants and distribution systems which are called upon to deal with hour-to-hour variations. In the electricity industry, however, the entire plant must respond to instantaneous changes of load and it becomes necessary to analyze the problem on a shorter period basis, with intervals of not more than one hour. Unfortunately it has not been possible to obtain from any published source sufficient data to build up a single line chart for the electricity grid load, but one has been made up from such data as are available, although it can only be claimed to be approximately correct.

In order to afford a closer comparison between the two public supply industries the single line chart for gas demand in part of the Metropolitan area has also been examined on an hourly basis, and although this has little significance from the point of view of production requirements, it does indicate the demands made upon the distribution systems, and is interesting for comparison.

The most striking feature of the gas demand chart when plotted on a basis of 8,760 hours is the severity of the consumption peak; this severe hourly peak can be traced to the mid-day cooking load, but it is conveniently smoothed out by the normal proportion of storage capacity, and the load factor of the manufacturing plant is in no way adversely affected. I do not wish to enlarge further upon this matter and only quote it as an example of the wealth of information which is contained in the simplicity of the single line chart.



The charts are shown here marked A and B, but because their accuracy is not strictly comparable I shall refrain from telling you which is which.

Now how does this subject link up with systems of charging for fuel services ? It is, of course, clear that the costs of production will vary in accordance with the load factor imposed upon the manufacturing plant by a particular consumer's load. On the other hand, the individual characteristics of any particular consumer's demand is not the sole criterion, for most observers engaged in the work would agree that an arithmetical summation of the individual loads would not produce a workable estimate of the gross station load which would be found in actual practice.

Production Costs and Consumer Demands

It would therefore seem logical to commence an investigation of the relation between production costs and consumer demands from the gross load curve, which is most conveniently presented as the single line chart referred to earlier, simply showing the proportion of the year at which each level of output is recorded. These total loads can be accurately measured, and where very large areas are served by one undertaking the mass effect produces statistical stability and the behaviour of groups of consumers is surprisingly consistent. Often in discussing the subject the question of the abnormal and special consumer is cited, but in practice these consumers form such a small proportion of the total load as to have a negligible influence.

The first deduction which becomes obvious from an examination of the single line chart is the fact that the load is influenced by seasonal temperatures and the initial split-up of the load can be allocated under two main heads—*viz.*:

(1) That which is affected by the seasons.
(2) That which remains sensibly constant.

We therefore have a preliminary method of assessing the load imposed by any class of consumer, by proportioning his demand into these two categories, for it is obvious that each has a particular bearing upon production costs and they may assist in rationalizing the basis for formulating a system of tariffs. Before pursuing this, however, it may be helpful to review some of the work already carried out in devising tariffs.

Looking back to the early years of this century, when the electrical industry started to expand, those of you who read the electrical technical Press at that time will remember the vigorous controversies which appeared on the subject of tariffs. To the best of my recollection the two-part tariff was introduced with the desire to fill in the " valleys " of the load curve by fostering the use of current by consumers whose requirements would tend to have this effect. In essence a standing charge was evolved sufficient to cover the capital charges, with a commodity rate for the actual current consumed only slightly higher than that required to cover the running costs.

Now it is obvious that considerable benefit should accrue from such a policy, particularly if any gain in sales did in fact fill in the valleys,

*Presidential Address to the Fuel Luncheon Club, Oct. 26, 1948

as by so doing existing capital could earn a greater annual revenue. Even if this desire were not achieved and the promoted sales not only filled in the valley but produced a mountain in its stead, no great harm could be done, so long as the standing and running charges could be automatically adjusted to meet the increase of capital and variations in working cost.

It is upon the effectiveness of this adjustment that the whole system of the two-part tariff will ultimately stand or fall, because if no adjustment is made when new business is obtained and increased capital needed, the whole aspect will be changed, for the effect of the new business will be to increase the cost of the remainder of the load.

One method employed in the electricity industry for assessing the standing charge by maximum demand meter reading does in part meet this requirement, for consumer standing charges are automatically adjusted to increases of demand. Sometimes, however, other methods are used for assessing the standing charge, which may be based on such data as rateable value of houses, floor areas, number of rooms, &c.; but these take no account of changes of demand by the consumer and bear no apparent relationship to the capital charges incurred.

It is appreciated that to ensure the correctness of fundamental data for devising any tariff is a difficult matter, for only past data are available to calculate and declare a price which will be applied to future consumer demands. One can never be certain of the user's reaction to the tariff and its influence upon his future demand, but it is the future demand which should earn the necessary revenue to meet additional charges on capital.

There are also several other factors which are likely to influence the suitability of the tariff in anticipating future conditions, and the more obvious of these can be summarized as follows:

(1) Changes in the cost of raw materials and labour.
(2) Lowering of running costs due to increased thermal efficiency and decreased capital charges on larger power units.
(3) Inflation of monetary values, resulting in an increase in capital charges to meet new business, which may be considerably greater than that required to meet the capital sunk in the original business.

The first of these factors can usually be adequately covered by rider clauses on the commodity rate, whereas in the past there has been a tendency for the latter two factors to cancel out. At the present time, however, the effect of increased thermal efficiency is comparatively small, for the law of diminishing returns has operated for long enough on the present manufacturing systems for optimum efficiencies to have been practically reached. On the other hand, monetary inflation, which had progressed slowly and steadily during the past century, with only short deflationary intervals, has been considerably accelerated by two major wars.

Effect of Inflation

The effect of the gradual progress of inflation, which has continued throughout the world's history, has been to a large extent hidden by its slowness, and throughout the period people have been puzzled by the small incomes upon which their forebears lived. The effect has, of course, become much more evident from time to time when the process has been markedly accelerated by abnormal causes, usually of a catastrophic nature.

In the public services there may be a buffer for the inflationary trend which to some extent takes the financial shock of the devalued currency and enables a spread-over term of some years before the increase of capital charges becomes effective in materially raising the price as a whole. For example, the water supplies of the country are mainly paid for by standing charges in the form of a rate on property, and this charge is not directly related to the quantity of water actually consumed. This arrangement was originally devised on the score of hygiene so as to ensure that sufficient water was used irrespective of income in order to safeguard the health of the community as a whole.

This system is very suitable for water supplies as the very modest operational charges of the water-works plant are small in relation to the fixed charges incurred in the extensive public works and reservoirs or water mains and pumping plant, all of which have a long life and only require renewing at very infrequent intervals. In such a case it follows that the capital may not have to be renewed or extended for many years, and increases in capital charges consequent upon the effect of inflation may be spread over a number of years and not felt severely by the individual consumer. In the electrical industry the ratio of capital investment to gross annual receipts is only about half that of water supply undertakings, and for the gas industry it is only about 30%. Also the useful life of plant in these latter industries is relatively shorter, so the impact of inflation may be felt sooner.

In the gas industry little attention was paid to the subject of special tariffs until the later 20s, for the effect of holder storage had balanced variations within the day and had largely masked the effect of load factors and reduced it to a seasonal range rather than an hourly range where variations within the day are superimposed on the seasonal change.

Now there are three big differences between the electricity and the gas industries. First, the load factor for the generating plant of the power station is considerably lower than that of the gas manufacturing plant owing to the smoothing effect of holder capacity; and consequently diversity plays a much more important part in the former industry than the latter, since the diversity between different types of demand is much more apparent when examined on an hourly basis than on a daily basis. Secondly, the gas industry has never had a cheap and simple means of registering the maximum demand of an individual consumer and therefore no fundamental basis for assessing a standing charge. Thirdly, as I stated earlier, the ratio of capital to working costs is lower for the gas industry than for the electrical, so that the fundamental justification for a two-part tariff for gas is markedly less.

Diversity of Load

Now I have said very little on the subject of diversity, which plays a very important part in electricity supply problems. There are two general forms of diversity, *viz.*, that which occurs between consumers within a similar class and that which occurs between different groups of consumers. Each of these has an important bearing upon the gross load factor of the entire system, and their significance can be judged by the fact that the overall load factor of the grid is some 47%, whereas I would venture to suggest that the individual load factors of the vast majority of consumers is much below this figure. In the domestic field, for instance, the individual load factor of a particular consumer's vacuum cleaner will be ridiculously low, but if we consider the collective load factor of 1,000 consumers' vacuum cleaners, the figure would attain must more reasonable proportions.

With regard to diversity between groups of consumers, it may be found that some groups are chronologically locked relatively to one another and therefore produce a diversity between themselves.

A word of warning should, however, be given at this stage, for if too much reliance is placed on group diversity and there is disproportionate development in different groups of consumers, their relative influences may change appreciably. Diversity within a group of consumers is quite a stable factor and is unaffected if the volume of business within the group should expand appreciably.

From the foregoing considerations I hope it may be evident that the single line chart may also assist in portraying the load factor conditions for the individual consumer, and each subsequent stage of integration of the collective load. This gives us three classifications—*i.e.*:

(1) The individual load curve.
(2) The group load curve.
(3) The final load curve to be met by the generating plant.

As a basis for establishing tariffs, the group classification would appear to be fundamentally the most sound, for the diversity within the group should remain sensibly constant, whatever the changes in gross demand, while any benefit which may accrue from diversity between the groups in lowering costs will be ultimately distributed and shared equitably by all consumers, but at the same time no ill effects will be produced if one group expands more rapidly than another, because each will stand on its own feet and be charged accordingly.

It is probable that the electricity industry already possess the necessary data for establishing the appropriate single line diagrams for each group of consumers, and it would appear that this method of approach may be worth exploring further, for there is much to commend the simplicity and clarity of its presentation, and it provides a ready link with the single line diagram for the gross load curve which ultimately determines the overall capital and working costs of the system.

Investigations on the principles I have enumerated can do no harm and might be desirable and acceptable in the future, so I put in a plea that both the electricity and the gas industries get together and interchange very closely their experience and data, and, further, the two industries, I venture to suggest, should keep in close touch with others working on the same subject in other parts of the world, because by doing so it might result in a solution of this difficult problem much sooner than might be otherwise expected.

PUBLIC LIGHTING ENGINEERS

The inaugural meeting of the Scottish Section of the Association of Public Lighting Engineers was held in the City Chambers, Dundee, on Nov. 5, when members were accorded a civic reception by Lord Provost Powrie.

Mr. N. Boydell (Eastbourne), President of the Association, said that when they first met 24 years ago street lighting meant little more than hanging lamps on poles at regular intervals. The aim of the Association was to educate for it was not always lack of money that resulted in an ill-lit town.

Mr. T. M. Lappin, Dundee Lighting Engineer, the Section's first Chairman, referred to the emphasis laid by the Ministry of Transport on the lighting of main traffic routes in built-up areas. Fuel was saved by economizing on other roads, but the number of complaints indicated that this practice was not popular with the public.

Mr. C. K. Ross (Edinburgh) pleaded for more co-operation between planning and lighting authorities. Housing schemes without kerbs and footpaths made things difficult for the lighting engineer.

Mr. G. Hutton, Deputy City Engineer, Dundee, commended the work of a " street opening committee " which met monthly in Dundee to discuss all projected street work.

Mr. E. J. Stewart (Glasgow), one of the pioneers of the Association, said that the lighting of side streets mattered most to the ratepayers. Few of them lived on main traffic arteries.

Chief Constable Pattison (Dundee) said that dark, shadowy patches were undoubtedly the cause of many road accidents.

THE CLACTON-ON-SEA GAS UNDERTAKING*

By FRANK ALLEN,
Engineer and Manager, Clacton Gas and Water Department

IT has been customary for your President to give some details of the undertaking which he serves. The Clacton Gas Undertaking is young when compared with the majority of similar undertakings and I have little excuse for troubling you with many historical details.

Slightly over 75 years ago most of the land now occupied by Clacton-on-Sea was farm land. This land was acquired by certain gentlemen who formed a development company, split up the land into building sites and, having built some houses, promoted the Clacton Gas and Water Company to supply the inhabitants of the new estate.

The first retort house was apparently built by this Company in 1875. This retort house was built on the same site as that occupied by the present gas-works. In those days there was no railway into Clacton but there was a scheme for bringing the railway to the new town, and tha gas-works was built on a site adjacent to the projected railway line. Unfortunately, this particular railway proposal did not materialize, and when the railway did eventually come to Clacton is came by a different route and the gas-works has never been closer than three-quarters of a mile from the nearest railway line. For varying reasons this would not appear to be a unique instance among gas-works in East Anglia, as several other comparatively large works are not directly served by railway lines.

In 1898 the Clacton Gas and Water Act was promoted. Under the provisions of this Act, the Clacton Urban District Council acquired the gas and water undertaking from the Clacton Gas and Water Company and took over the works on June 20, 1899. In present circumstances, it would appear likely that the Clacton Council will have owned a gas supply undertaking for just about 50 years before losing control on nationalization of the industry.

At the date of acquisition by the Council the quantity of gas made by the undertaking was 17 mill. cu.ft. per annum. During the financial year ended March last the make of gas had risen to 353 mill. cu.ft., and a still greater quantity is being sold in the current year.

The works have been reconstructed on several occasions. The last major reconstruction was completed in 1932 when a vertical retort installation of 10 upwardly heated 62 in. major axis Woodall-Duckham continuous vertical retorts and ancillary plant was installed. A further major scheme of extensions is now contemplated and provisional orders have been placed for retorts, coke handling and storage plant, &c.

There was one unusual development in 1932. This was the implementation of an agreement entered into between the Clacton Council and the Tendring Hundred Waterworks Company whereby the Company agreed to close down the Frinton and Walton Gas-Works and take all the gas required for their undertaking in bulk from the Clacton Council. Thus, since 1932 the gas for the Frinton and Walton area has been delivered from Clacton into the Tendring Company's gasholders at Kirby, a distance of some six-and-a-half miles from Clacton.

So far as I am aware, this was the first instance in the country where the whole gas requirements of a company-owned gas undertaking were supplied from a neighbouring municipally-owned undertaking. In the first year the bulk supply was 40 mill. cu.ft. It is now practically double that quantity.

This gas is pumped to the Kirby gasholders through a 6 in. diameter main. Holmes Connersville compressors or boosters are used for this duty. These are usually worked at about 7 lb./sq. in. pressure, pumping just over 25,000 cu.ft. of gas per hour, but their maximum capacity is in excess of this figure. There are connexions through district governors between this feeder main to the Kirby holders and the normal Clacton distribution system, and in addition to supplying gas to the holders the main and boosters are used for increasing pressures on the outskirts of the Clacton district.

Loss of Calorific Value on Compression of Gas

In mentioning this supply to distant gasholders it may be interesting to publish the fact that some years ago we carried out an extensive series of tests on this particular installation in an endeavour to discover the possible loss of calorific value in compressing and transmitting gas under the conditions of this bulk supply.

At the present time I understand this particular matter is being investigated in connexion with high-pressure storage of gas. The question has obvious ramifications concerned with the moisture content of the gas before compression as well as the type of gas to be compressed and whether or not it has been debenzolized. Our investigation concerned merely the calorific value of the gas despatched from the works and the calorific value of the same gas entering the distant gasholders.

The gas was mainly from our vertical retort installation. Prior to dispatch it had been stored in ordinary water-sealed holders. It has not been through a dry gas plant, nor had benzole been abstracted from it. On some occasions it was a mixture of vertical retort gas and carburetted water gas.

Our results showed variations from + 0.7 B.Th.U. to − 1.7 B.Th.U., with an average loss over the whole series of tests of just under 1 B.Th.U. The greatest losses were coincident with the greatest percentages of carburetted water gas in the gas as tested at each end of the pipeline.

It is, of course, quite easy to make adjustments in manufacture to negative this very slight loss, which is equal to less than 0.25%, and we have no difficulty in maintaining standard calorific value on this adjoining district.

Working Results—Continuous Vertical Retorts

The results of 15 years' working at Clacton have been abstracted in the hope that they may be of interest and helpful for comparative purposes.

Our plant was first put to work in September, 1932, but as the results have been abstracted from books of account as well as from works records, the figures given are from April 1, 1933, to March 31,1948.

It will be seen there are variations in the results from year to year. It is only natural that there should be some variation, and I suggest that it adds to the value of the long period total figures by proving that possible errors can occur in shorter periods. These variations may possibly be due to errors in stock taking of coal, coke, or tar, to difficulties experienced during periods of repair, or to labour difficulties, or any of a number of other causes, but such errors as there may be must balance out over a period of 15 years.

Before proceeding to put before you the detailed table of results, I would point out that these figures do not represent the total gas output of the works but only the gas made in the vertical retort installation.

The gas as measured has been taken at the declared value of 470 B.Th.U. Almost exclusively the coal used has been South Yorkshire and for a long period of the time under review was coal of our own selection. The quantity of gas made in the vertical installation during the period 1941 to 1945 indicates, to some extent, the doldrums caused by evacuation of the civilian population from the coastal area. Possibly "doldrums" may not be a particularly appropriate word for this period. Its original meaning was of course related to "calm," and there were odd moments of this wartime period which could not be truthfully described as calm, nor were they particularly good for carbonizing results.

The figures given in the table for coke and breeze include all coke and breeze brought out of the retort house. Some of this material was obviously used on works boilers and water gas plants, and it should be particularly observed that the figures are not for coke and breeze necessarily available for sale by the undertaking. The table gives the results year by year, but to my mind the most interesting figures are those worked out from the total results of the 15 years.

During this period we have made 14,168,860 therms of gas in the vertical retort installation by carbonizing 167,359 tons of coal. This is equal to 84.66 therms per ton.

The total quantity of tar made is equal to 16.59 gall. per ton, coke and breeze made exclusive of that used on producers 9.32 cwt. per ton, and benzole made 0.5 gall. per ton.

While not wishing to discuss the accuracy or otherwise of such basis of calculations, all members who are responsible for the operation of a gas-works must obviously become familiar with the figures used by the Regional Gas Engineering Advisory Boards for calculating efficiencies. I make no apology for using the same calorific value figures as the Board, as these must make the figures easier for comparison than the use of other and different values.

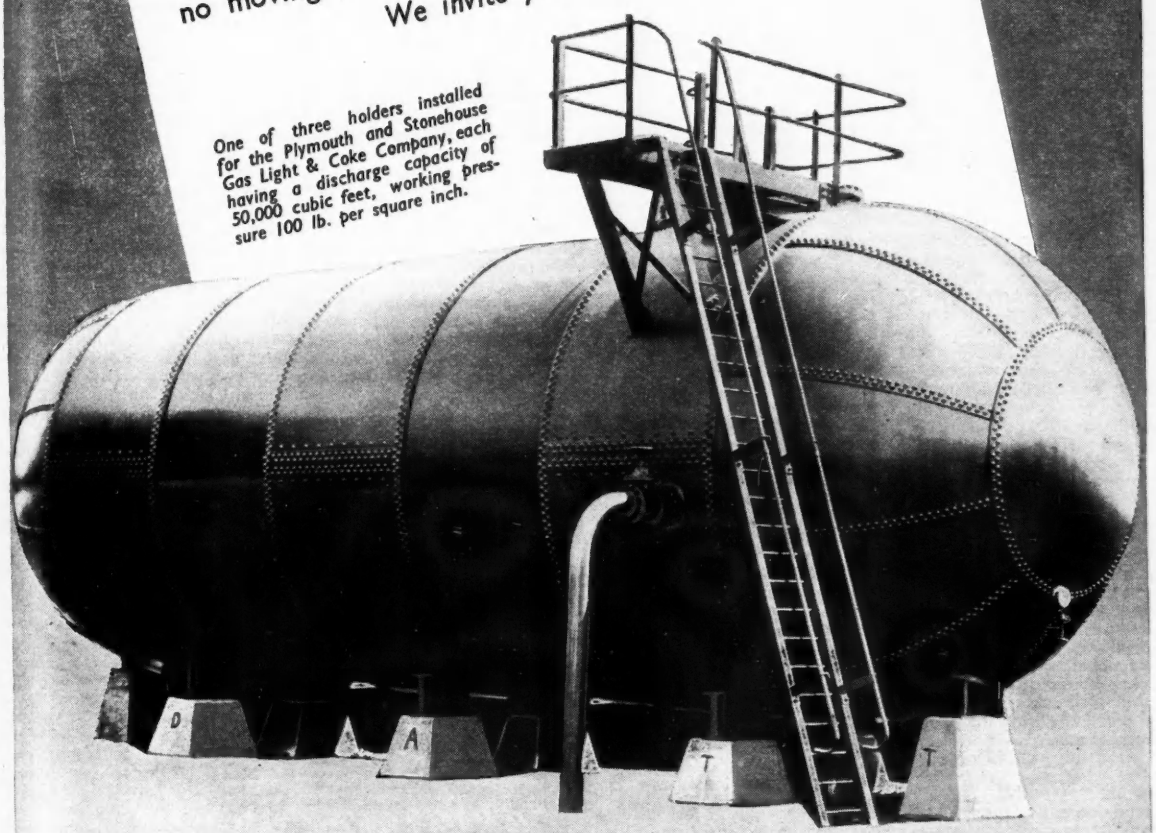
You will doubtless remember that in Advisory Board computations coal is considered to have a value of 300 therms per ton, coke and breeze 269 therms per ton, tar 1.8 therms per gall., and benzole 1.5 therms per gall.

* Presidential Address to the Eastern Association of Gas Engineers and Managers, Nov. 12, 1948.

HIGH PRESSURE GASHOLDERS

This form of gas storage equipment is gaining in popularity, being particularly advantageous for District purposes, requiring smaller mains and having no moving parts and liquid seals.

We invite your enquiries.



One of three holders installed for the Plymouth and Stonehouse Gas Light & Coke Company, each having a discharge capacity of 50,000 cubic feet, working pressure 100 lb. per square inch.

NEWTON CHAMBERS

NEWTON CHAMBERS & Co. Ltd., THORNCLIFFE, Nr. SHEFFIELD

LONDON OFFICE: GRAND BUILDINGS, TRAFALGAR SQ., LONDON, W.C.2.

On this basis the figures for the 15 years work out as:

	Therms per ton
Gas	84.66
Tar	29.86
Coke and breeze	125.35
Benzole	0.75
	240.62

Taking the years separately, on the same basis, one finds they vary between a minimum total of 226.84 therms per ton, and a maximum of 258.41 therms per ton.

Year ended March	Gas made therms	Coal carbonized	Gas therms per ton	Tar gall. per ton	Coke and breeze cwt. per ton	Benzole gall. per ton
1934 ...	929,698	10,562	88.02	13.57	9.47	
1935 ...	999,704	10,713	93.31	16.11	10.12	
1936 ...	1,048,598	11,619	90.25	16.92	8.47	
1937 ...	1,069,847	11,693	91.49	16.77	9.13	
1938 ...	1,038,583	11,322	91.73	17.51	8.51	
1939 ...	1,070,331	11,889	90.03	18.03	9.35	
1940 ...	1,059,747	13,348	79.39	17.36	8.64	
1941 ...	576,911	7.398	77.98	16.46	9.48	
1942 ...	567,699	7,098	79.97	16.21	10.67	
1943 ...	562.209	7.190	75.19	17.71	9.09	0.92
1944 ...	705,700	9,202	76.58	16.15	8.79	2.58
1945 ...	784,543	10,245	76.58	15.73	9.51	2.30
1946 ...	977,337	12,852	76,05	16.30	10.32	1.87
1947 ...	1,341,013	15,241	87.99	17.11	9.77	0.42
1948 ...	1,436,940	16,987	84.59	16.36	8.93	

In the ordinary way one would not consider that information on the working of a retort installation over a long period was complete without replacement or repair costs. I attempted to take out repair costs for this period but it soon became obvious that the alteration in money values between pre-war and the present time was so great that the figures proved most misleading. In these circumstances, I merely mention the repairs and renewals we have found necessary over the years the installation has been worked.

We have two producers. After an initial two years' work we found it necessary to reline one producer per annum and at the same time to replace the majority of the step-grate furnace ironwork. In these circumstances the life of each producer, between relining and renewal of ironwork, is two years.

During the life of the setting we have renewed all clinkering doors and frames of the producers. This has only been done once in the 15 years. The producer charging lids have had an average life of six years. Retort top castings have not proved to be a very serious item and the majority are still the original castings, but over the period the setting has been at work we have had to renew some eight auxiliary coal hoppers and four mouthpiece castings. Bottom castings are a much more expensive item. Curved discharge doors have an average life of only two years and some of the side plates of the coke discharge boxes have required renewing in not more than three years.

So far as actual rebuilding of retorts is concerned, not one single retort has been completely rebuilt, but we have renewed the top fireclay monolith, the silica portions of the face of the retort, the CO nostril zone, and the waste gas outlets of each retort.

This rebuilding work was commenced in 1940 and the repairs were done in series of two retorts, the last pair being completed in 1946. At present we are considering the complete rebuilding of these retorts from the bottom. There are considerable difficulties in this matter as we are very short of plant to meet our present load.

Some of these retorts have worked for just over 4,000 days and, as previously mentioned, they have only been partially rebuilt. At present the average number of working days per retort is 3,320. We consider working days to be only days during which coal was carbonized and the figures recorded exclude all scurfing and stand-by periods.

In concluding these remarks on carbonizing results, I would like to acknowledge the help and guidance I received over some years from my predecessor at Clacton, the late Mr. Sydney Francis, and to point out that during the earlier years of this installation the undertaking was under his management.

Coastal Town Difficulties

Having regard to the long coastline of East Anglia, I feel justified in mentioning some of the present-day carbonizing plant difficulties in one of the coastal holiday towns. Contrary to the inland towns, our peak load for gas is in August and not in December. Incidentally, our pre-war record output was 235 mill. cu.ft. per annum. Last year it had risen to 353 mill. cu.ft., and this year it is increasing still further. I do not suppose these are unusual figures for wartime and post-war increases in gas consumption. The unusual part is that, owing to wartime coastal evacuation, the whole of this increase has come to us in two years. Up to the summer of 1946 we were below pre-war outputs.

These increases have brought, and are bringing, unusual difficulties. These difficulties are particularly due to the fact that while the summer peak load has increased the rapidly rising winter load is responsible for a very large portion of our annual increase. Since the war we have installed an additional water gas plant, but, even with this, it is becoming impossible to spare sufficient plant to carry out essential repairs and rebuilding during the winter period.

In pre-war days, our average gas output between October and April was 4.1 mill. cu.ft. per week. This has risen to 6.5 mill., while the average August weekly output has risen from a pre-war 7.1 mill. to 8.3 mill. cu.ft.

The carbonizing results given have not been published in any competitive spirit. They can probably be bettered in larger undertakings with more technical staff, and it must be pointed out that they refer to a setting designed 16 years ago. This setting is obviously without the latest type of heating and other improvements which have been incorporated in settings built after 1932.

Domestic Development and Domestic Tariffs

By representing the Eastern District on the Domestic Development Committee of the British Gas Council, I have naturally taken much interest in the development of domestic gas supply. This development is of interest to me outside the work of the Committee, as the load in Clacton is largely of a domestic character.

In these times one is tempted to say that the development of our domestic load has deteriorated into a chase after more or less non-available materials with which to conduct our business. We trust this is merely a passing phase and that we may later be able to develop our business for the benefit of the existing consumer, as well as the potential consumer, without the restrictions imposed by shortage of materials.

The most obvious factor in any sales development is the price at which our product can be marketed. Our consumers are of all classes and income groups and, if we are to offer the standard of gas heated comfort to all people, it would appear evident that we have to provide a cheaper service for the lower income groups. This is already done by the electricity supply industry and by those gas undertakings who make standing charges based on the rateable value of the property supplied. These charges are usually a fixed percentage charge on the rateable value of each property, and are irrespective of the quantity of electricity or gas used. This practice of using the rateable value of properties roughly to segregate income groups appears the only practical method of dealing with this matter.

The main objection to a general adoption of standing charges would appear to be that the electricity industry was first in the field, and some doubt has been expressed as to whether the lower income groups would welcome two fixed charges each quarter. This doubt makes a voluntary fixed charge scheme appear to be a somewhat hazardous project, and in present circumstances no one could forecast the possible political reception which might be given to any scheme involving compulsory standing charges for gas.

I give a few relevant figures of domestic gas consumption compiled from the Clacton undertaking. These were taken out to consider the possibility of introducing, at some future date, a possible block domestic two-part tariff based on rateable values. At the present time of unstable money values and shortages of materials there is no intention of introducing this scheme in Clacton, but the figures may be of interest as, in Clacton, we hope they will be useful if we are ever able to consider price reductions.

The figures are for domestic consumption in the Clacton district. They do not include hotels, cafes, or business premises. They were abstracted since the war and are the result of a survey of more than half the total number of domestic consumers in the area.

The figures give some ideas on a quarterly basis of the use of gas in different valued properties in this area.

Rateable value	Prepayment Consumers Average quantity for heaviest quarter in year Therms per quarter	Prepayment Consumers Average quantity for all four quarters in year Therms per quarter	Ordinary Consumers Average quantity for heaviest quarter in year Therms per quarter	Ordinary Consumers Average quantity for all four quarters in year Therms per quarter
Under £10	26.79	23.97	24.63	23.63
£10 under £15	34.78	32.43	37.08	33.75
£15 under £20	37.13	34.31	29.29	27.68
£20 under £25	38.07	36.19	33.49	30.35
£25 under £30	43.71	39.01	34.66	32.23
£30 under £35	41.36	34.54	37.95	36.10
£35 under £40	52.40	39.95	44.76	40.03
£40 under £45	40.99	36.42	41.31	36.86
£45 under £50	40.90	36.19	40.14	37.06
£50 and over	79.90	63.45	73.40	63.81

The suggestion we had in mind was not to fix a standing charge on any property, but to give a substantial reduction in the price of gas after a predetermined quantity has been used. The point particularly under consideration was whether or not it was reasonably possible to fix lower first block quantities for lower rateable values and increase the size of the first block in some way proportionate to the rateable value of the property. This would appear to be roughly practicable, but only to a limited extent. A less average quantity of gas is used in the smaller properties, but it will be seen that difficulties arise higher in the scale of rateable values, as the amounts of gas used do not increase regularly throughout the scale but rather tend to fall over some few groupings of rateable values.

It is generally accepted that managerial, establishment, and distribution charges do not increase proportionately with increased business and under the present municipal financial structure, capital charges do not rise unless increased output necessitates additional plant. In these circumstances it may one day be possible to proceed further

with this scheme and to offer cheaper gas to those consumers who will take quantities of gas substantially above the average purchased in the type and size of property they occupy. In the meantime I am afraid we shall have to be content with selling gas at 15.106d. per therm for ordinary domestic consumers and 16.383d. per therm for prepayment domestic consumers, irrespective of the size of the properties occupied, particularly as these prices compare reasonably favourably with the prices charged generally in London and the South-Eastern Counties.

Until my nomination for the Presidency of this Association I was Chairman of the Eastern District Education Committee and I make no excuses in bringing to you a few thoughts on matters of education in the gas industry. First and foremost I would like to pay tribute to the work the Institution of Gas Engineers and the District Associations have carried out in connexion with the accelerated full-time education of the younger men whose careers were interrupted by service with the Forces. Excellent work has been done in rehabilitating these men into the industry and they have been granted an opportunity to fit themselves to take positions commensurate with their age.

The Eastern District has some reflected glory in this matter as 14 students out of 15 from the intensive full-time course at the Cambridgeshire School of Technology and Art were successful in the Institution's Higher Grade Gas Engineering (Manufacture) Examination.

The Institution is making still further progress in catering for examinations for the professional grades of the industry and as and from the spring of 1951 it is anticipated that candidates will be accepted for the new Associate Membership Examination. This is progress which will undoubtedly benefit the industry and the individual, but a matter which should be of some concern is the training and possible examination of the artisan grade. I do not suggest that training or education in this sphere is necessarily a matter for your Education Committee, and, least of all, for the Institution of Gas Engineers; but, granted a need for education in this sphere, one wonders what body should tackle this problem.

By reason of a Gas Fitters' Classification Scheme, the examination of gas fitters in the Eastern District has come to some extent within the orbit of the Regional Joint Industrial Council. We know that by a decision of this same Council the gas fitter who in addition to other service qualifications, gains the final certificate in Gas Fitting of the City and Guilds of London Institute reaps a considerable financial reward in the way of increased wage rates. Where the men have no facilities for taking the City and Guilds course, an examination approximately equivalent to the standard of the final City and Guilds is arranged and carried out by the Joint Industrial Council. Passing this examination or test can carry the same monetary award. To that extent, we cater for the staffs of our distribution departments, but how about the men employed on our manufacturing plants ?

In some works there is possibly some specialized training for works fitters and maintenance men, but what specialized training is provided for plant operatives ? Are we always to be content to recruit, for example, water gas plant operators, vertical retort stokers, or exhauster and booster attendants from the grown-up manual labour which economic conditions or the previous following of a " blind alley " occupation has frequently caused to drift to the gas-works ? If this is to remain the method of recruitment, are we to allow these men to " pick up " the job of stoking or operating any other plant with no more training than allowing them to be " taught " over a varying period of time by men who, possibly only a comparatively short time ago, themselves " picked up " the job in a similar manner ?

That is the method which most of us have had to adopt throughout and since the war period. The only qualification we have been able to consider is the availability of the man at the time and the possibility of his having sufficient intelligence or aptitude to " pick up " the job, and so far as can be gathered that is the only sort of selection and training that many works have ever known. Even if this method has proved satisfactory up to the present time, it does not mean that it cannot be bettered, and this causes one to ask if the time has not now come for some consideration of a recognized form of training for these grades and a recognized standard of knowledge which they should at least be given an opportunity to acquire.

The training need not necessarily be only in the practical side of their own particular duties, but in the theory of the working of the plant on which they are employed and, to some extent, the practice and general theories underlying the whole plant comprising the present-day gas-works.

I feel confident that, by better training and tuition of these men, undertakings, executives, and operatives are likely to derive mutual benefits, and I think it most desirable that we should endeavour to create the very best type of operator and that we should endeavour to attract men of a reasonably high standard of intelligence for these jobs. It is difficult to do this unless we can create some real interest in the job and possibly provide some incentive, as we do in the case of gas fitters, for men who reach and maintain a particular and recognized standard of knowledge and efficiency.

Most probably this is the last Presidential Address to this Association by an engineer employed by a company or municipally owned gas undertaking. No one can be certain of the future structure of the District Associations, or even of their future functions or possible limitations, and in these circumstances I do not think it out of place to voice one or two pious hopes. The first is that this Association, which has a membership spread over the areas of more than one Area Board, may still function over exactly the same counties as before, and that we may be permitted to meet to discuss matters of interest on the same level as in the past, irrespective of the limits of specific Area Boards.

The second sincere hope is that the District Associations, particularly the Eastern Association, will seriously endeavour to maintain the right we have had of free and frank discussion of all matters appertaining to our members and of interest to them, whether such matters be technical or commercial, providing such commercial matters affect the well-being of gas consumers.

At the present time I see no sign that it may ever be necessary to struggle for such an object, but all of us who have served gas undertakings have paid at least lip service to what I hope is our faith—that it is our aim and object as well as our job of work to serve the best interests of the gas consumers in whatever locality we are placed. I feel that to serve those interests best we must be able to discuss matters affecting gas consumers without prejudice to the Association or ourselves. I hope that the Association will long continue and will always endeavour jealously to guard the obligations, objects, and privileges it has had under the present ownership of gas undertakings.

As technicians experienced in the administration of gas undertakings, I do not think there is the slightest doubt that, following the change of ownership, we shall all work to make the industry at least as successful under the new ownership as it was under the old.

BEHIND THE GAS TAP

Processes involved in gas production and distribution were explained to members of the Cambridge Inner Wheel when they visited the Newmarket Road Works of the Cambridge University and Town Gas Light Company. The visitors were welcomed by the Managing Director, Mr. J. Hunter Rioch, who is also President of the Cambride Rotary Club.

A tour of the works was undertaken under the guidance of Mr. E. H. Winch, Deputy Engineer and Manager, Mr. L. W. Jarrett, Works Engineer, and Mr. W. J. Spiller, Chief Technical Assistant, and the ladies found much of interest, and were able to follow the process of transforming the raw coal into gas, and how the by-products are derived.

After the tour tea was served. Mrs. Franklin, President of the Inner Wheel, in proposing a vote of thanks said the visit had enabled them to gain considerable knowledge, which had been previously restricted to the mere turning of a tap, and to appreciate the work which was put in to provide gas service.

Examples were displayed of the latest design in gas cookers, refrigerators, water heaters, and gas fires which, while objects of admiration, held additional interest because they showed that not only was it the business of a gas company to manufacture and provide gas, but also to supply the most economical and efficient appliances for using it.

COOKERY LESSONS FOR MEN

Practical cookery classes are an important aspect of home service work, which has always been primarily connected with the woman consumer, but many men nowadays are vitally concerned with running a home. With this in mind a course in household management for men was planned recently by the British Gas Company. Twenty-four hours after a short paragraph, a cartoon, and a poem had appeared in the local Press, enrolment by prospective students had filled two classes to capacity.

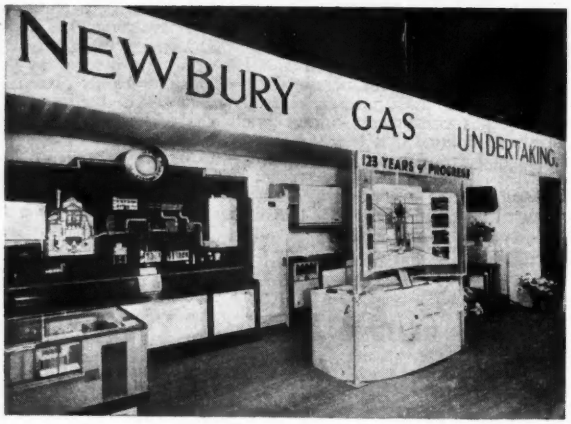
Stories from a few of the students prove that the classes are meeting an urgent need. Mr. X, over 70 years of age, looks after an invalid wife and attempts to do the housework, shopping, and cooking. Some are retired widowers, living alone; others, bachelors in bed-sitting rooms, looking after themselves.

A foreman at a milk factory, who during his wife's absence on holiday became ill from eating food of his own cooking, feels that every man should be capable of looking after himself. Mr. Y, a keen gardener, is interested in his products from garden to table. Two handicraft teachers are anxious to learn any craft which requires a high standard of manipulative skill. The winner of a third prize in a cookery competition aspires to greater heights. Both a baker and the owner of a private hotel wish to add to their professional knowledge.

Each course consists of (1) cooking the joint, two vegetables, Yorkshire pudding, scones, biscuits, cakes, short crust pastry, and trifle; (2) a working knowledge of modern thermostatically controlled ovens, water heaters, and refrigerators. Publicity has been given to the classes by the local and national Press. The high percentage of attendances at all the classes together with the interest shown in the use and maintenance of appliances, the tidy and systematic method of working, and the really high standard of the finished dishes proves that home service concerns both men and women consumers.

NEWBURY CIVIC WEEK DISPLAY

Newbury Corporation recently held a "Civic Week" to instruct townspeople in the work carried out by the various Corporation departments and to interest them in the government of their town. The outstanding item was the Civic Exhibition held in the Corn Exchange, at which the gas undertaking had a stand on which the main exhibit was a working model loaned by Mr. R. Walker, Chief Engineer of the Manchester Corporation Gas Department. The model is illuminated and by an ingenious arrangement of chains and wheels and coloured tubes, it gives the appearance of coloured fluids in motion to indicate the gas stream, &c.



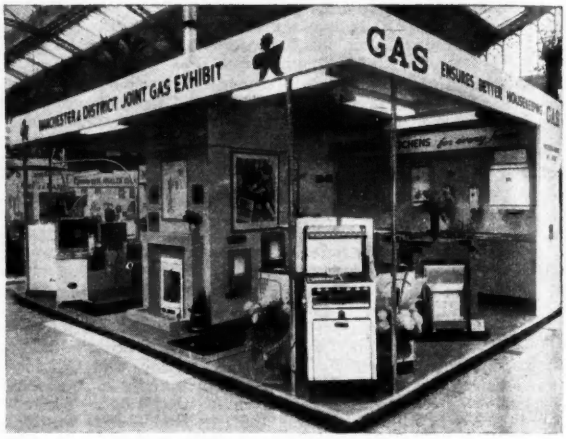
The Newbury Gas Department exhibit, showing the Manchester model.

In the kitchen set the main feature was an illuminated local view behind the kitchen window. This view of the Berkshire Downs was 6 ft. long by 4 ft. wide and was enlarged from part of a negative only 2¼ in. by 1¾ in. The layout of the stand was designed by the staff of the British Gas Council and the colour scheme, erection, and provision of all other items were carried out by the staff of the gas undertaking under the supervision of Mr. L. W. Thorn.

Over 20,000 people and school children saw the exhibition and publicity material distributed included 1,500 copies of "Plan Your Own Kitchen," 500 copies of "Matchless Interior," and 400 copies of "Happy Homes" game. A competition was run in connexion with the "Plan Your Own Kitchen" models, prizes being awarded.

Hartlepool Gas and Water Company has decided in view of impending nationalization to divide its water and gas interests.

Our photograph shows the stand of the Glasgow Gas Department at the recent Modern Homes Exhibition in the Kelvin Hall, Glasgow. Sales of appliances broke all records.



Twelve gas undertakings in the Manchester area were associated in the Manchester and District Joint Gas Exhibit at the recent Better Housekeeping Exhibition at the City Hall, Manchester. The exhibition was well attended and the stand aroused great interest. Nearly all the exhibits were in operation for practical demonstration. Three noteworthy units were the Flavel "Metro" convector coke grate, fitted with heating ducts and hot water supply; the Radiation C.28 circulator fitted with economy valve, and a kitchen unit comprising Wallis cabinets and built-in gas appliances.

TRADE NEWS

The latest issue of the *F.P.A. Journal*, published quarterly by the Fire Protection Association, 84, Queen Street, E.C.4, includes a message from Sir Stafford Cripps, notes on "interesting" recent fires, and a section of technical notes.

* * *

Elliott Brothers (London), Ltd., Century Works, Lewisham, S.E.13, have issued a new leaflet, numbered G004A, with the slogan "An eye on temperature is an eye on quality." It introduces their range of temperature measuring equipment for measuring heat between temperatures of −200° C. and 2,000° C., using distance thermometers, thermo-electric pyrometers, total radiation pyrometers, or optical pyrometers. Delivery of all this equipment, it is stated, is in the main good.

* * *

Oxygen—Its Potentialities in Iron and Steel Production, a brochure issued by the British Oxygen Company, Ltd., to all steel-making and allied firms, sets out the Company's policy in the supply of medium purity oxygen and describes its close collaboration with the British Iron and Steel Research Association. Hitherto in Great Britain the demand has been almost entirely for oxygen of high purity, 99.5% or greater, this quality being essential for cutting and welding. For use in manufacturing liquid steel, however, a lower purity is enough and in most cases much larger quantities are needed. The book sets out the general case for oxygen, describes the application of oxygen to many iron and steel processes—including the open hearth, the Bessemer, electric furnaces, and blast furnace methods, discusses the difference between liquid and medium purity oxygen, and considers costs and the large scale production of oxygen by rectification of air.

Working Party Reports

Economic and accounting aspects on the reports of the Working Parties set up to consider the efficiency of 17 industries are discussed in *Working Party Reports* (published by the Association of Certified and Corporate Accountants, 22, Bedford Square, London, W.C.1.) It has been prepared by the Library and Publications Committee of the Association and has a preface by Mr. Frederick Wilson, O.B.E., who says that comparatively little attention is being focused on maximizing accountants' contribution to the nation's present economic predicament. A general discussion on the significance of the Working Party Reports prefaces detailed examination of them, and is followed by a number of special articles on technical aspects.

GAS STOCKS AND SHARES

British Funds were still outstandingly buoyant, until the end of the week when news was given of a £5,000,000 South Rhodesia 3% Loan of 1971-73 at 100, which served to detract interest from trading in funds. The lack of interest and scattered offerings enabled prices to ease in some places.

The main interest of the week has again been on the compensation terms in the Steel Nationalization Bill, an interest heightened by the debate in the House of Commons and by the announcement towards the end of the week that Mr. G. Strauss, Minister of Supply, that any steel company which had sound plans for dividing itself up between iron and steel and related activities on one hand, and clearly unrelated activities on the other, he would be prepared to consider such proposals sympathetically. The effect of this would be, in certain cases, to nationalize the iron and steel interests of a number of companies but to leave their other interests in private hands.

Business on the Stock Exchange was maintained at a firm level, markings being at their highest on Nov. 15 at 8,347, and at their lowest on Nov. 12 at 6,305. Dealings in gas shares totalled 233. The week's official price changes were:

OFFICIAL LIST

Eastbourne 'A'	... ...	99 — 104	+ 1
Eastbourne 'B'	... ...	98 — 103	+ 2
Newport (Mon.) Cons.	...	98 — 103	+ 1